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LETTER OF TRANSMITTAL

Hon. CLINTON P. ANDERSON,
Chairman, Joint Committee on Atomic Energy,
Washington, D.C.

DEAR MR. CHAIRMAN: Transmitted herewith for the information of the Joint Committee, the Congress, and the public is volume II of "Selected Materials on Atomic Energy Patents." Volume I, containing nine chapters, was distributed recently, and this volume contains chapter 10, "Special Problems in the Foreign Field."

Included in this volume are the following materials: A study by Mr. William K. Chipman, of the University of Wisconsin Law School, on "International Patent Problems in the Nuclear Energy Field" (pp. 291–332); an AEC letter on patent policies in Canada and the United Kingdom (pp. 332–335); an address by Mr. Bennett Boskey on "Patent Licensing Problems in International Atomic Energy Development" (pp. 335–342); and reports on atomic energy patent provisions of various foreign countries, as prepared by employees of the Library of Congress (pp. 342–392).

Mr. Chipman conducted his study as a consultant to the Joint Committee, but the views presented, of course, are his own, and have not been adopted or yet considered by the Joint Committee or its staff.

I hope that these materials, as well as those previously distributed by volume I, will be helpful to committee members and others preparing for the April 21–24 hearings.

Sincerely yours,

CHET HOLIFIELD,
Chairman, Subcommittee on Legislation.

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CHAPTER X. SPECIAL PROBLEMS IN THE FOREIGN FIELD

INTERNATIONAL PATENT PROBLEMS IN THE NUCLEAR ENERGY FIELD

(By William K. Chipman [1])

I. INTRODUCTION—INTERNATIONAL PATENT ISSUE IN APRIL 1959 PATENT HEARINGS BEFORE JOINT COMMITTEE ON ATOMIC ENERGY

The April 1959 patent hearings before the Joint Committee on Atomic Energy are intended, among other things, to give the committee a basis for deciding whether the Atomic Energy Act of 1954 ought to be amended to permit American contractors of the AEC to acquire ownership or preferential rights in foreign patents, on inventions or discoveries made during work on Commission contracts. The act does not at present permit such filing, and rights to domestic and foreign patents relating to nuclear power normally vest in the Commission, under the terms of the act and of standard AEC-industry contracts.[2] Under present Commission regulations and practice, the Commission normally files foreign patent applications in those countries where filing is deemed justified, the Commission deciding whether or not and where to file.[3] Contractors are permitted to file domestic and foreign applications, but rights to the resulting patents, as regards nuclear power applications, vest in the Commission.[4]

The present system for filing foreign patent applications has been criticized by spokesmen of the American nuclear power industry as failing to secure an adequate competitive position for the industry [5] and as failing to generate adequate economic incentives for investment and work in the nuclear energy field by private companies.[6] Industry representatives have in general taken the position that AEC has not followed an aggressive practice in filing abroad and that AEC contractors ought to be allowed, by amendment of the present act, to file patent applications abroad, to insure a strong U.S. patent position in foreign countries and to produce strong economic motives for investment in the nuclear power field.[7] The AEC has to date opposed this industry position on the grounds that the interests of all American industry and of the nation are best advanced under the present system, under which the AEC secures all patent rights on nuclear development work carried on under AEC contracts and financed by the Government, making these available without charge to all American com-

[1] Law Fellow, University of Wisconsin Law School; consultant to Joint Committee on Atomic Energy for purpose of writing this paper. The views expressed in this paper are those of the writer and have not been adopted or yet considered by the Joint Committee or its staff.
[2] See discussion infra p. 303.
[3] See discussion infra p. 303.
[4] See discussion infra p. 304.
[5] See discussion infra p. 314.
[6] Ibid.
[7] See discussion infra p. 321.

panies by means of royalty-free, nonexclusive licenses on AEC-held patents.[8]

II. PROBABLE EXTENT OF AMERICAN PARTICIPATION IN FOREIGN NUCLEAR POWER MARKETS

Before assessing the validity of these criticisms and of the desirability of congressional action bearing on foreign patent filings, it is necessary to examine briefly the probable extent of American participation in foreign nuclear power markets.

Nuclear power in industrialized countries

World energy consumption per capita is reckoned to have increased approximately 12 times in the last 100 years,[9] reaching an annual level of about 3.2 billion tons of coal equivalent in 1950, and is estimated to rise to perhaps 7 billion tons in 1975, and 15 billion tons by the year 2000.[10] The bulk of this increase to date has occurred in the industrialized nations of the west, with living standards rising in consequence.

Energy demands in Western Europe have since the last war outgrown domestic energy resources. In May 1957 the "three wise men" of Euratom reported that the six Euratom countries alone—Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands—then imported 23 percent of their energy supplies, the equivalent of 100 million tons of coal, mostly in the form of Middle Eastern oil, and further that these energy imports would double by 1967 (to 33 percent of then total requirements) and probably treble by 1977 (to 40 percent of requirements), assuming moderate but steady economic expansion and maximum development of domestic conventional power. The foreign exchange required annually for these imports into Euratom countries was in round figures $2 billion in 1957 and was therefore expected to rise to $4 and $6 billion in 1967 and 1977.[11] This foreign exchange requirement would place great strain on the international payments and trade situation of the Euratom nations, and increasing dependence on Middle Eastern oil would result in dangerous political vulnerability.

A Euratom target of 15,000 mw. of nuclear power capacity to be in operation by 1967 was recommended to cope with this threatening energy import situation, with imports to be thereby held to a level of approximately 165 million tons of coal equivalent per year.[12]

Britain, importing only 12 percent of her total energy in 1957, but faced with a shortage, becoming increasingly severe, of coal which may be economically mined, has laid down a program under which some 19 nuclear power stations are to provide 5,000 to 6,000 mw. by 1965.[13] Installed capacity by 1975—with an estimated annual shortage at that time of domestic fuels of the order of 95 million tons of coal or equivalent—has not been programed, but is expected to be in excess of 15,000 mw.,[14] to provide some 40 percent of British electric current requirements.[15]

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[8] See discussion infra p. 322.
[9] Larsen, Atomic Energy 73 (London, 1958).
[10] Lansdell, The Atom and the Energy Revolution 18 (Penguin, Harmondsworth, Middlesex, 1958).
[11] Armand, Etzel & Giordani, "A Target for Euratom" 15–17 (1957).
[12] Id. at 20.
[13] HMSO, Nuclear Energy in Britain, 23 (1957).
[14] Ibid.
[15] Larsen, op. cit. supra, note 9 at 75.

Figures for programed installation of nuclear power capacity are not available for other European countries, but it appears, in general, that Austria is self-contained as to power requirements, that Iceland can cope with energy problems of the next few decades by hydro development, that the program of Ireland (Eire) is directed to maximum development of domestic nonnuclear sources, that Norway has ample hydro resources for anticipated power requirements to the year 2000, and that Switzerland plans to meet possible energy deficiencies by erecting conventional plants and by importing current. Denmark, on the other hand, imports nearly all her energy and is therefore much interested in new sources of economically competitive energy; Greece, Portugal, and Turkey import large proportions of energy and are thus interested in new sources; and Sweden, though well supplied with domestic hydro, peat, and oil-shale resources, is interested in atomic energy as a source of industrial and domestic heat.[16]

Japan's effort is hard to gage, due to the heavy influence of political questions,[17] but one authority assumes that Japanese nuclear power installations will be on the order of one-tenth of those in Western Europe.[18]

Nuclear power in underdeveloped areas

It is a commonplace that the underdeveloped countries are eager to achieve increases in material standards of living similar to those achieved in the industrialized west in the last century, but it is not so clear that nuclear power is the panacea in this field that early optimism envisioned.[19] Nuclear powerplants presently under development are best adapted to constant-level supply of large quantities of energy into electric power grids,[20] to carry the baseload, with load fluctuations being carried by conventional thermal or hydro plants, better suited to output variation. This characteristic of nuclear plants arises out of their high capital cost, which must therefore be spread over the maximum number of kilowatts output. The economic capacity for such large nuclear constant-load stations has been indicated to be 100 mw. and upward.[21]

In the underdeveloped countries, however, power grid systems are rare, and only comparatively small power stations, in the range of 10 to 20 mw.,[22] adaptable to fluctuating loads, are required. It will take considerable development work to bring overall power costs for low and variable output nuclear stations to 15 or 20 mils per kilowatt-hour, compared to present costs for small conventional (diesel or oil-fired thermal) stations, in the underdeveloped countries, of 20 to 40 mils.[23] It must be borne in mind, moreover, that power costs are but a minor proportion of industrial output costs, on the order of 1 percent of total costs.[24] The important issue in assessing the nuclear power needs of underdeveloped areas is therefore the degree to which they

[16] Lansdell, op. cit, supra note 10 at 23–26.
[17] Pickard-Warren-Lowe, A Growth Survey of the Atomic Industry, 1958–68, at 50 (Atomic Industrial Forum, Inc., New York, February 1958).
[18] Allen, Atomic Energy and World Trade, 12 V. and L. Rev. 51, 58 (1958).
[19] Klaus Knorr, address, American Foreign Policy and the Peaceful Uses of Atomic Energy, printed in the American Assembly, Columbia University, Atoms for Power: United States Policy in Atomic Energy Development, 100 at 113 (December 1957).
[20] HMSO, the Commonwealth and Nuclear Development 30 (1956).
[21] Allen, supra note 18 at 53.
[22] Sir John Cockcroft, address, Nuclear Power in the United Kingdom, printed in the American Assembly, op. cit. supra note 19, 131 at 137.
[23] Ibid.
[24] Knorr, op. cit. supra note 19 at 114.

possess an industrial base capable of absorbing relatively large power outputs.

Nuclear power may thus find some scope in countries or areas which have reached an intermediate stage of economic development—such as India and parts of Latin America—and where the rate of economic growth is rapid. It may further find application in such field operations as mining or refining, where fuel transport expense may make conventional power unusually costly.

Influence of U.S. foreign policy objectives on extent of foreign nuclear market

There exist American foreign policy objectives which may require a higher level of nuclear power activity in the underdeveloped countries than that indicated by purely economic criteria. Many authorities have noted that maintenance of prestige, including fostering an image of the United States as devoted to constructive, not destructive, applications of atomic energy, is a major U.S. objective,[25] one going so far as to state that, "If we go about this responsibility halfheartedly, we will lose a vital battle in the struggle between the free world and the Communist-dominated world." [26] Many of those informed in the field have stated that they fear American prestige as a knowledgeable power in the atomic power field is a melting asset.[27]

In Europe as well, there are a number of policy objectives which may lead to a higher level of nuclear export activity than would perhaps occur as the result of economic interest alone, such objectives as increasing the vigor of the West European economies, reducing, or at least holding constant, European dependence upon oil imports, and encouraging such steps toward European unification as Euratom.[28]

While analysis of these objectives is not within the scope of this paper, it is plain that the extent to which they are implemented will markedly affect the size of the American nuclear export market in the decades ahead, also that governmental subsidy will be required proportional to the level of nuclear export activity deemed required in support of our foreign policy objectives. Dr. Chauncey Starr, general manager of Atomics International, has for example proposed for the consideration of the Joint Committee a 10-reactor, 1,300-mw. program, involving a total subsidy of $2 billion over a 10-year period, for both fuel processing costs and capital investment in excess of the cost, to overseas purchasers, of conventional plants.[29] Lewis L. Strauss, then AEC Chairman, stated to the Joint Committee in 1958 that it was the objective of the U.S. program to aid our "friends in attaining competitive nuclear power within 5 years." [30]

Extent of foreign nuclear trade and competitive position of American nuclear power industry in foreign markets

The importance to the American export market of Government subsidy is emphasized by the fact that in the United States, where no

[25] See, for example, statements by leading figures in government and industry cited by Knorr, op. cit. supra note 19 at 101–102; National Planning Association report printed in Development, Growth, and State of the Atomic Energy Industry, hearings before the Joint Committee on Atomic Energy, 85th Cong., 2d sess., 596 at 599 (1958); testimony of Francis K. McCune, vice president, General Electric Co., id. 429 at 445. (Testimony of Dr. Starr, 1957 sec. 202 hearings at 204). Note: The above cited hearings, which are held during the first 60 days of each session of Congress pursuant to the requirements of sec. 202 of the Atomic Energy Act of 1954, 42 U.S.C. § 2252, will be cited hereinafter as "1958 Sec. 202 hearings at ——."

[26] A. J. Biemiller, legislative director of the AFL–CIO, quoted in Knorr, op. cit. supra note 19 at 104.

[27] See, for example, testimony of Dr. Chauncey Starr, general manager, Atomics International, 1958 sec. 202 hearings at 184.

[28] Knorr, op. cit. supra note 19 at 102–105.

[29] Starr, testimony, 1958 sec. 202 hearings at 186–192, 206–208.

[30] 1958 sec. 202 hearings at 5.

acute conventional power problem is anticipated for some decades, reactor development has proceeded on a broad front, with investigation being carried forward into a number of relatively sophisticated reactor types. The only American plant now producing power in commercial quantities, however, is the Shippingport pressurized water plant, rated at 60 mw. The years 1960 and 1961 should see the completion of the 180 mw. boiling water power reactor at Dresden, Ill., the 225 mw. pressurized water reactor at Indian Point, N.Y., the 110 mw. Yankee pressurized water reactor at Rowe, Mass., and the 90 mw. Enrico Fermi fast neutron reactor at Lagoona Beach, Mich., with further power reactors of various types coming into operation to 1963.[31]

Britain, on the other hand, has had less freedom of choice, being faced with conventional power costs on the order of 75 percent again as high as those in the United States [32] and with an imminent crisis in coal production, and has accordingly forged ahead rapidly with relatively simple, natural-uranium, gas-cooled reactor types, at the same time undertaking research into more advanced designs, such as the Dounreay 15 mw. fast-breeder reactor.[33] The 70 mw. Calder Hall gas-cooled station has been in operation since 1956, while plants to be completed in 1960–61 will be in the 300 to 500 mw. range. British nuclear power is expected to cost 10 percent more than conventional power in 1960, to reach parity in 1963, and to be about 30 percent cheaper than coal power by 1970.[34]

A recent Atomic Industrial Forum survey concluded that economically competitive power might be achieved in the United States by 1964 to 1968, with an installed nuclear power capacity of 2,000 to 6,000 mw. in 1968, these minimum and maximum estimates varying so widely because private programs for nuclear power development are highly sensitive to relatively minor cost variations in terms of mils per kilowatt-hour.[35] It is therefore apparent that if the United States is to participate effectively in foreign nuclear power development, some degree of "forced draft" development, at a rate beyond that indicated by domestic economic incentives, will be required; that conversely, activity in foreign markets may result in speedier development of plants for the American home market.

It seems unlikely that American companies will supply a substantial proportion of the goods or services required for the United Kingdom's 5,000–6,000 mw. 1965 program, in view of the active British nuclear industry.

Most commentators have expressed doubt that the Euratom 1967 target of 15,000 mw. will be achieved, with an installed capacity of between 3,200 and 5,700 mw. thought to be more likely,[36] but they nevertheless expect that the European market will provide the bulk of export business for both American and British industry. The proportion of the total business secured by American concerns will depend to a considerable extent upon how the development of American reactors succeeds, as compared to British work on gas-cooled types, in attaining reactors economical and suited to European operating conditions, though it should be noted that Euratom is now committed to a 1,000

[31] AEC, 25th Semiannual Report 20–31 (January 1959).
[32] Sir John Cockcroft, op. cit. supra note 19 at 136.
[33] Op. cit. supra note 13 at 23.
[34] Sir John Cockcroft, op. cit. supra note 19 at 136.
[35] 1958 sec. 202 hearings at 593.
[36] Pickard-Warren-Lowe survey op. cit. supra note 17 at 53.

mw. program of approximately six large nuclear power stations of American types, to be completed in 1963, or at the latest 1965.[37]

One estimate of total foreign business assumed that America and Britain shared export trade to Western Europe and Japan about equally; that by 1970 about 12,500 mw. of capacity would be laid down in Western Europe; that the distribution of reactor types was such that American concerns would be able to supply import requirements for about 6,500 mw. of the total installed capacity; and that actual American exports would amount to about 40 percent of the total value of this 6,500 mw. of capacity. It was estimated that a demand for between $0.5 and $1 billion of American equipment and services would result. Adding fuel and processing services gave a total of around $1 to $1.5 billions of goods and services to be supplied to Western Europe by 1970, with perhaps 10 percent in addition to Japan.[38]

These calculations cannot of course be at all definitive, since so much depends on a multitude of decisions which have not yet been made by many governments and industries, as well as on the relative progress of American and British development, but it appears that a potential foreign market exists to 1970 for nuclear power goods and services which may range from one-third of the total domestic demand to 1968 to nearly equal to or in excess of 1968 domestic requirements; that is, foreign trade may account for on the order of 25 to 50 percent of all American nuclear business in the decade 1960 to 1970.[39]

Despite cautious views as to long-range demand for American exports,[40] it thus seems probable that foreign business will loom large indeed during the next decade, even allowing for the fact that West European countries will be making strong efforts to develop domestic nuclear industries and that the level of American and British export activity will accordingly tend to diminish,[41] probably after 1970.

The forms in which such foreign trade is carried on may include export of equipment, export of know-how and technology, by cooperation with foreign engineers,[42] and establishment of enterprises owned jointly by American and foreign companies.[43] Where an American

[37] Euratom Cooperation Act of 1958, 72 Stat. 1084 (1958). See also Proposed Agreement for Cooperation Between the United States and Euratom, H. Doc. No. 441, 85th Cong., 2d Sess. (1958).

[38] See the excellent analysis by Aley Allen, staff counsel, Atomic Industrial Forum, Inc., Atomic Energy and World Trade, 12 Vand. L. Rev. 51 at 56–60 (1958).

[39] Assuming American concerns supply 40 percent, in value, of European requirements for 6,500 mw. of capacity should result, very roughly, in a demand for American goods and services on the order of that for a program of 40 percent times 6,500 mw., or 2,600 mw. This calculation fails to take many cost factors into account, but is perhaps accurate enough for rough comparison with the expected range of installed capacity in this country by 1968, between about 2,000 and 6,000 mw., supra page 295. This hypothetical 2,600 mw. would thus be on the order of 25 to 50 or 55 percent of total American production.

[40] Testimony of Francis K. McCune, vice president, General Electric Co., 1958 sec. 202 hearings at 436, "I think it is unlikely that over any long period of time this country will supply to advanced countries a major part of their nuclear powerplant equipment, any more than we now supply a major part of their steam boilers, their turbines, their forges, or their ships. The United States is a high cost producer of capital equipment. Moreover, other advanced countries have the will and the resources to develop engineering and manufacturing capabilities of their own." Representative Holifield's reaction, id. at 444–445, was to the same effect, that "* * * we will be up against a competition of advanced countries in their own markets who have a cheaper production cost than ours and we would also be up against that same competition in the struggle for trade with those countries who are not advanced and who buy on a competitive market the nuclear reactor, and, therefore, it might be somewhat illusory if we think we are preparing American industry for a big export business".

[41] Allen article, op. cit. supra note 38 at 58. Note that in his calculations leading to estimate of total foreign business, he assumes that even in the field of American-developed reactor types, U.S. firms will supply only 25 to 40 percent of the total capital investment involved.

[42] Joint Committee on Atomic Energy seminar with equipment manufacturers, Nov. 22, 1957, summary in 1958 sec. 202 hearings at 585.

[43] See testimony of Michael Michaelis, of Arthur D. Little, Inc., to the effect that some 30 agreements were made in 1957 for joint ventures of various kinds between American, European, and Japanese companies, 1958 sec. 202 hearings at 127. See too testimony of Dr. Chauncey Starr, general manager, Atomics International, concerning Interatom, a subsidiary in Germany jointly owned by Atomics International (or North American Aviation, of which AI is a division) and a German company. Dr. Starr stated that one of the reasons the German company was anxious to enter into such an agreement for a jointly owned subsidiary was that the technology at the command of Atomics International * * * "could save them something like 5 years in getting on the market with equipment." Id at 196.

firm contracts to erect a complete power station in a foreign country, it would normally subcontract over half of the total work involved, in such fields as pouring concrete, erecting buildings, and assembling components, all to be carried out under the supervison of the American prime contractor.[44]

Summary—Extent of foreign market for American nuclear industry

It therefore appears that the potential foreign market for the American nuclear industry may be as much as one-quarter to one-half of all American nuclear business in the next decade; it will at all events amount to a very respectable proportion of total American nuclear activity, though the export market may be expected to diminish as foreign companies acquire technological know-how. A pattern of subsidiary companies owned jointly by American and foreign concerns will undoubtedly develop, as indeed it would appear to have already done.

Discussion of foreign patent policy must be set in this context of the probable extent and nature of foreign trade in nuclear energy goods and services.

III. FOREIGN PATENTS—SURVEY OF LAW APPLICABLE; COST AND PRACTICAL ASPECTS OF FOREIGN PATENT FILING

Law applicable to international patents

Before examining the present American foreign patent position in the atomic energy field, and its influence on the market position of the American nuclear industry, it is necessary to summarize the salient features of international patent law, as well as practical and cost aspects of foreign patent filing.

The most important single document bearing on international patent law is the International Convention for the Protection of Industrial Property, dated June 2, 1934,[45] based on the original Paris Convention of 1883, including among its 45 signatories every major industrialized nation of the free world. The Convention signatories have agreed to grant patent treatment to nationals or residents of other signatory nations equal to the treatment they grant their own nationals.[46] This provision obviously requires, on the part of patent counsel for U.S. manufacturers or the AEC, a detailed familiarity with the domestic patent laws of the foreign countries in which they contemplate filing. National patent laws, however, while they vary considerably in such areas of substance and procedure as subject matter on which patents may issue, remedies available to the patentee, fees required, whether the patent must be used (or "worked") in the jurisdiction, and duration of the patents, are all directed to the general end of allowing the patentee a monopoly on his invention or process for a term of years, ordinarily in excess of 15.[47] No attempt has been made in this paper to analyze the detailed effects of patent laws in specific foreign jurisdictions on U.S. patent applications therein.

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[44] Starr, ibid.

[45] The 1934 Convention is reprinted in Vernon, "The International Patent System and Foreign Policy," S. Doc. No. 63, Study 5 of Subcommittee on Patents, Trademarks, and Copyrights, Senate Committee on the Judiciary, 85th Cong., 1st sess., 38–52 (1957).

[46] Convention art. 2, *id.* at 38.

[47] Vernon, id. at 1–2; Boskey, "Patent Licensing Problems in International Atomic Energy Development," address before Atomic Industrial Forum, Inc. Symposium on international problems of the atomic industry, Plaza Hotel, New York, mimeograph, at 3, Apr. 25, 1957.

The Convention further provides that a prospective patentee who has filed his application in any signatory country shall have a period of 1 year in which to apply for patent protection in any other Convention jurisdiction.[48]

Effects of publication

One feature of most foreign patent laws of great significance in the atomic energy field is that of the effect of *publication* of the process or invention desired to be patented, prior to application for a patent. Since the Atomic Energy Act of 1954 states that the AEC shall encourage declassification and dissemination of technical data, consistent with the requirements of security,[49] and since the Commission, pursuant to this provision, maintains that it has established a system of rapid technical publication, together with a wide international distribution system, it is plan that the interest in rapid dissemination of technical information may conflict with the interest in patenting.

In nearly all countries publication will bar subsequent patenting. Thus, prior publication anywhere in the world will bar subsequent patent applications in Belgium (and in the Belgian Congo), Chile, Denmark, Finland, France, the Netherlands, India, Italy, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the Union of South Africa, and Venezuela.[50] In the following countries, patent applications are barred by prior publication in that country: Australia, Brazil, Greece, Ireland (Eire), Israel, Japan, New Zealand, Pakistan and the United Kingdom; note, however, that the AEC maintains libraries in each of these nations, and that transmission of technical documents is so rapid that, for practical purposes, publication in the United States is nearly equivalent to publication, and hence barring of patents, in the countries listed.[51] In Canada, publication will not bar patenting for a period of 2 years subsequent; in Germany, for 6 months, and in Mexico, for 1 year.[52] In the United States, publication will not bar patenting for a period of 1 year.[53]

Thus, for all practical purposes, in view of the AEC's duty to disseminate technical reports, prior AEC publication will bar patenting in all countries likely to be significant in the atomic energy field, with the exception of Canada, Germany, Mexico, and the United States. AEC publication policy and its relation to patent policy is therefore discussed infra, at page 306.

The practical effect of publication is of course that the invention or process disclosed may be used by any company or government, since no patents may issue on it. If a patent application has been filed in any convention country prior to publication, however, an additional year for filing is thereby secured.

Cost and practical aspects of foreign patent filing

Because representatives of industry and of the Patent Bar have often alluded to the substantial cost of foreign patent filings, as a factor which must be weighed in deciding whether to file on a given

[48] Convention, art. 4, op. cit. supra note 45 at 39.
[49] 42 U.S.C. §§ 2013 and 2161b.
[50] Interview with Mr. Roland Anderson, Chief, Patent Branch, Office of General Counsel, Atomic Energy Commission, at Germantown, Md., Feb. 17, 1959. Caution: This information is presented by way of an overall survey only, and must of course be checked in detail by counsel prior to filing in any specific country.
[51] Ibid.
[52] Ibid.
[53] 35 U.S.C. § 102(b).

invention or process in a given foreign country,[54] it is worthwhile examining typical costs in this field.

The Chief of the AEC Patent Branch, Mr. Roland Anderson, reports that typical costs to the Commission for foreign filing of patents in the name of the AEC, as assignee of the actual inventor, inclusive of initial official filing fees and fees for legal work are as follows,[55] based upon contract prices with the AEC:

> Australia, $125; Canada, $75; India, $100; Union of South Africa, $105; United Kingdom, $75. No translations from English are required in these jurisdictions, but drawings must be included with the application, with costs typically in the range of $5 per sheet for the first country and $3.50 for second and succeeding countries.
>
> Translation adds an element of cost in the following jurisdictions, but basic official and legal fees are as follow:
>
> Belgium, $80 (French translation may be used); Denmark, $123; France, $130; Germany, $85; Japan, $95; The Netherlands, $95; Sweden, $145; Switzerland, $95. Translation costs are in the range of $3.75 to $8 per 300 word page, depending upon the country.

These costs are probably generally representative of those that would be charged to any inventor, except that the AEC contracts for foreign filing on a large-volume basis and may in consequence secure lower rates than individuals could, and except that AEC attorneys do a certain amount of preparatory work, which might be done by the patent attorneys of large companies or by private patent counsel for smaller companies and individual inventors. The AEC applications are processed through Washington patent firms, who in turn have the foreign work handled by representatives abroad.

Thus, filing a patent, for example, of 20 pages, with one sheet of drawings, in Belgium, Canada, France, Germany, and Denmark, would involve a total expense in the vicinity of $900.

Further expense, not encountered in the United States, results from the fact that most foreign countries require fees and taxes to be paid during the life of a patent to keep it in force. Typical fees and taxes for patents maintained during their full terms are as follows (depending upon current rates of exchange):

Australia, $284; Austria, $783; Belgium, $609; Denmark, $482; Finland, $507; France, $282; Germany, $2,485 (higher than any other country); Italy, $211; Japan, $94; the Netherlands, $915; New Zealand, $95; Norway, $584; Spain, $90; Sweden, $710; Switzerland, $589; Union of South Africa, $109; United Kingdom, $462.[56]

Fees and taxes to keep the aforementioned assumed patent valid for its entire life in Belgium, Canada, Denmark, France, and Germany, would total $3,858, or a total of approximately $4,760 when the initial costs of about $900 are added. Very few patents, however, are kept in force for the full term, especially as renewal fees tend to increase

[54] Boskey address, op. cit. supra, note 47 at 5; Atomics International statement on atomic energy patent program, submitted to AEC in response to invitation in Federal Register of November 19, 1957. Transcript of hearings on AEC patent program 274 (April 1958).

[55] Interview, supra note 50.

[56] Federico, "Renewal and Patent Fees in Foreign Countries," study 17 of Subcommittee on Patents, Trademarks, and Copyrights, Senate Committee on the Judiciary, 85th Cong., 2d sess. 5 (Committee Print 1958).

with time. European data suggest that by the 10th year of the patent term, only 20 to 30 percent of patents are maintained in force.[56a]

It is therefore apparent that foreign patents are not indiscriminately filed, either by U.S. industry or by the AEC. Rather, they must be and are selectively filed, with possible benefits carefully weighed against burdens. It must be borne in mind that filing foreign patent applications, seeking whatever monopoly advantage the patent is designed to generate, is an act of judgment, since it is normally difficult to predict, at a given time, which patent may prove valuable in the future.

As to the time required for filing applications abroad, it is usual practice in the AEC patent branch to send all required documents to the patent firms handling foreign filing at least 2 months before the end of the year following filing in the U.S. Patent Office.[57]

IV. FOREIGN PATENTS—BUSINESS AND POLICY MOTIVES FOR FILING ABROAD

Having noted the dimensions of the financial burden of patent filing, and the fact that filing abroad, in a given case, is an act of technical judgment, and bearing in mind that the central foreign-patents issue in the April 1959 hearings is whether U.S. companies should be allowed to acquire ownership or preferential rights in foreign patents, or whether the AEC shall continue to take title to foreign patents on behalf of all U.S. industry, one must examine the motives which typically lead companies to file foreign patent applications.

Exports under patent protection

Possession of patents in foreign countries offering market opportunities allows American manufacturers to export equipment directly into these jurisdictions, and helps prevent either outright exclusion of American manufactures by reason of domestically owned patents or the levying of high royalty fees on such imports by the foreign patentee.[58] (Some difficulty may be encountered with overlapping foreign patents, even where an American patent is filed in the market country. Patent problems can arise from the fact that in most countries the first applicant, who need not be the first inventor, is entitled to the patent.) A former chief of the State Department International Business Practices Division, Mr. Raymond Vernon, has stated that the extent to which foreign patents are in fact used to protect exports into foreign markets is not known,[59] but it is safe to say that patents filed in potential markets are at least considered desirable by U.S. manufacturers. The relative value to industry of patents filed abroad, as compared to the protection afforded by publication, should be investigated at the April 1959 patent hearings.

Licensing foreign patents for direct profit

Another motive frequently cited by representatives of the U.S. nuclear industry is that of selling patent license rights to a foreign manufacturer, with a view to deriving money royalties.[60] This course may represent the most profitable use of a patent privately owned,

[56a] Id. at 26-32.
[57] Interview, supra, note 50.
[58] Dr. Chauncy Starr, Testimony before JCAE, 1957 sec. 202 hearings at 211; Boskey address op. cit. supra, note 47 at 45; William A. Staiger, vice chairman, committee on patents, National Association of Manufacturers, testimony before JCAE, 1958 sec. 202 hearings at 423.
[59] Vernon, op. cit. supra, note 45 at 10.
[60] Boskey, op. cit. supra, note 47 at 4.

as in cases where direct exports are difficult by reason of tariff or quantitative restrictions, where exchange regulations prevent withdrawal of profits on exports, or where higher American labor costs prevent competitive exports into the market in question. There is apparently a substantial amount of such licensing taking place in manufacturing fields, as suggested by the creation of a number of firms in this country and abroad which specialize in bringing together patentees and prospective licensees.[61]

Preventing appropriation or unauthorized use of foreign rights

The reverse aspect of the motives just noted is of course that infringement of patent rights owned in the foreign market may be prevented by legal action.[62] The existence of the patent often inhibits such appropriation, however, and reduces litigation.[63]

Licensing of foreign subsidiaries or affiliated companies

Possession of foreign rights may improve the patent owner's opportunity to establish abroad a subsidiary or affiliated company to manufacture the item protected under patent license. Such companies are often in position to benefit by national or regional tariff advantages, such as Commonwealth or European preferences,[64] and patent holdings may therefore act to stimulate American investment abroad.

Cross-licensing agreements

It is sometimes highly important to domestic industry to be in position to trade foreign patent rights to foreign companies, potential competitors, which own United States patents in the common field of activity. Situations may arise where a foreign company may hold patents allowing it to stalemate an American manufacturer's capacity to apply innovations, by refusing to grant licenses in the technological field in which it has acquired a commanding patent position. In such situations, if the American company is in position to trade similar rights in the foreign company's market area, a mutually beneficial exchange may be negotiated, equitable to both parties.[65] (Issues of the legality of such agreements in relation to American antitrust laws are not discussed in this paper.)

Use of patent position as a device for division of markets

Cross-licensing agreements may not always be used for the relatively benign and constructive purposes just noted, but rather for the purpose of territorially dividing the world market to avoid competition, when the effect of the agreement is that neither party competes in the other's agreed market.[66] This motive, while illegal under American antitrust law, has historically been a "significant factor" in world trade, involving, in various fields, foreign or American companies, or both.[67] There have, however, been no allegations found that such practices are extant in the nuclear energy field.

[61] Vernon, op. cit. supra note 45 at 8–9.
[62] Starr testimony before JCAE, 1957 sec. 202 hearings, at 211.
[63] Atomic international statement, op. cit. supra, note 54 at 268.
[64] Boskey, op. cit. supra, note 47 at 4.
[65] Boskey, id. at 5; Vernon op. cit. supra, note 45 at 9.
[66] Boskey, ibid.
[67] Vernon, op. cit. supra, note 45, at 10–12.

Patent position as conferring prestige

Possession of a body of patents in a foreign jurisdiction has been said to confer business prestige advantages in that country, intangible, but nonetheless of value in improving sales potential.[68]

Foreign trade and investment significance of foreign patents position

While representatives of American nuclear industries have often spoken of a foreign patents position as an incentive to invest capital abroad, and as an important factor affecting entry to and ability to compete in foreign markets.[69] some of the same individuals have also pointed out that business and technical know-how in the nuclear field were probably more valuable commercial assets than patent positions, at least under present law.[70]

Mr. Raymond Vernon has stated that, with regard to the effect of foreign patents generally,

> * * * investors contemplating overseas investment apparently are not influenced very much in their decisions by the nature of the patent protection available to them. * * * [This statement based on National Industrial Conference Board and Department of Commerce surveys of 1951 and 1954.] * * * although investors and their patent attorneys may wish for better patent protection if it can be had, the nature of that protection is rarely a significant factor in the ultimate decision whether to invest.[71]

Again, testimony should be taken at the April 1959 hearings as to the extent to which foreign patent holdings influence levels of foreign trade and investment by the American nuclear power industry.

Summary

It appears fair to say that a foreign patent position in the nuclear field may be in many cases, and undoubtedly is in some cases, a major factor in deciding whether to operate overseas. What remains, however, is to analyze the legitimate motives of government and/or industry for filing, noted above, in terms of whether they are best achieved under the present system, under which the AEC takes title to foreign patents arising out of Commission contracts, and then grants royalty-free licenses to any American company requesting them, or whether they would be better achieved under a system allowing AEC contractors to acquire ownership or preferential rights in foreign patents.

As will be discussed infra in section VII, the actual use that is made of AEC-held patents—the extent to which they are used affirmatively to promote the public interest—is of great significance in assessing the value, to industry and to the United States as a whole, of patents held by the Government as against patents held by individual companies.

V. PRESENT U.S. LAW, REGULATIONS, POLICY, AND PRACTICE RELATIVE TO FOREIGN PATENT FILING

Before examining in detail proposals made by the American nuclear industry to change the present law and practice relating to foreign

[68] Boskey, op. cit. supra, note 47 at 5.
[69] Starr, testimony before JCAE, 1957 sec. 202 hearings, at 211; Atomics International statement, op. cit. supra, note 54 at 268; Atomic Industrial Forum, Inc., Committee on Patents, Trademarks, and Proprietary Information, statement, April 15, 1958, submitted to AEC in response to invitation in Federal Register of Nov. 19, 1957; transcript of hearings on AEC patent program, 278 at 283 (April 1958).
[70] Starr, testimony before JCAE, 1958 sec. 202 hearings, at 193.
[71] Vernon, op. cit. supra, note 45 at 16–17.

patent filing, it is necessary to examine present practice and, insofar as possible, the foreign patent position which has resulted therefrom.

Law

The present law applicable is section 152 of the Atomic Energy Act of 1954:

> Any invention or discovery, useful in the production or utilization of special nuclear material or atomic energy, made or conceived under any contract, subcontract, arrangement, or other relationship with the Commission * * * shall be deemed to have been made or conceived by the Commission, except that the Commission may waive its claim * * * under such other circumstances a the Commission may deem appropriate * * *.[72]

AEC regulations and contract clauses relating to patent rights

Prior to this statutory provision, both MED and AEC had adopted standard patent-rights clauses for insertion in its contracts. The type "A" clause is included in contracts where the nature of the work is such that inventions will probably "* * * relate directly to or concern some phase of the research or development work which AEC conducts or sponsors * * *" and in effect reserves all patent rights to the AEC.[73] The AEC Patent Branch reports that as of October 31, 1958, their records showed there were active 1,088 prime contracts containing this type of clause and 992 subcontracts.[74]

The type "B" clause is used where the work is of such a nature that inventions would relate only incidentally "* * * to some phase of the basic research or development work which AEC conducts or sponsors, but * * * will relate to a field of work in which the contractor has an established industrial and patent position. * * *" It gives the Commission sole power to determine disposition of the title to and rights under any patents resulting, but guarantees the contractor "* * * *at* least a nonexclusive, irrevocable, royalty-free license * * *" for purposes *other than* atomic energy.[75] AEC records show as active 39 prime contracts and 46 subcontracts containing the "B" clause.[76] The statistics indicate that this clause is not used as frequently as the "A" or "C" types.[77]

The type "C" clause is used when the work is of such nature that it will relate only incidentally to some phase of AEC research and development, will relate to a field in which the contractor has an established industrial or patent position, and will result from routine development or production work by the contractor. The Commission again has sole power to determine disposition of title to and rights under any resulting patents; the contractor receives a sole (save as against the Government), irrevocable, royalty-free license, for purposes *other than* atomic energy, plus the sole right to grant sublicenses for nonnuclear applications.[78] AEC records show as active 58 prime contracts and 102 subcontracts containing this clause.[79]

The type "C" clause relates to so-called "outfield" rights, and is most often employed where the subject matter of the contract is an industrial process or equipment with nonnuclear as well as nuclear

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[72] 42 USC § 2182.
[73] AEC Manual § 9113.013 (June 1957), reproduced in Bureau of National Affairs, Atomic Industry Reporter, Laws and Regulations, p. 235:211 (hereinafter, "BNA, At. Ind. Rep., Laws & Regs.").
[74] Report from Roland Anderson, Chief, Patent Branch, AEC, to Hon. Carl T. Durham, chairman, Joint Committee on Atomic Energy, in response to letter of Nov. 7, 1958.
[75] AEC Manual, § 9113.014 (June 1957), reproduced in BNA, At. Ind. Rep., Laws & Regs. p. 235:212.
[76] Report, Supra, note 74.
[77] Interview, supra, note 50.
[78] AEC Manual, § 9113.015 (June 1957), reproduced in BNA, At. Ind. Rep., Laws & Regs. p. 235:212.
[79] Report, supra, note 74.

application. Examples includes valves, pumps, turbines, pressure vessels, general instrumentation, and chemical compositions, e.g., such materials as graphite, aluminum, steel, alloys, or chromium.

Note that each of the above three types of clause gives the Commission sole right to determine *whether* or not *and where* patent applications will be filed.

AEC policy allowing contractors to file domestic or foreign patent applications; contract provisos and administrative procedures

In cases where the contractor indicates that it will wish to file patent applications, either in the United States or abroad, the following proviso may be inserted in the type "A", "B", or "C" patent-rights clause:

* * * *provided, however,* That if the contractor when furnishing the complete information as to any invention or discovery advises the Commission that the contractor desires to file a patent application and sets forth the date when such patent application will be filed, the contractor may file any U.S. or foreign patent application on such invention, subject to Commission security requirements and regulations.[80]

Alternatively, if the contractor indicates that it wishes the right to file applications in the United States or abroad in cases where the Commission has decided *not* to file, the following proviso may be inserted in the patent-rights clause:

* * * *provided, however,* That, if the Commission determines not to file, the contractor may file any U.S. or foreign patent application subject to Commission security requirements and regulations.[81]

Irrespective of whether either of the above two provisos is incorporated in the contract, the AEC, as a matter of administrative procedure at the time when the contractor reports inventions, requests that the contractor advise the AEC whether it desires to file any patent applications either in the United States or abroad.

If the invention does not involve classified subject matter, the Commission has promptly notified the contractor to proceed to file the U.S. and any foreign applications the contractor desires. In instances where restricted data is involved, foreign applications, of course, have only been filed where the subject matter falls within the scope of information exchangeable under an agreement for cooperation negotiated under section 123 of the Atomic Energy Act of 1954 and where it has been ascertained that the subject matter is of sufficient importance to warrant the filing in a foreign country.[82]

(NOTE.—The effect of security requirements on filing patent applications and of bilateral agreements for exchange of information are discussed infra at p. 306.) Mr. Anderson states that no contractor has to date been refused permission to file patent applications in the United States or abroad, save where security requirements intervened.[83]

In every case where the contractor is allowed to file the domestic patent application, it is the practice of the AEC Patent Branch to check with the contractor 6 months before the end of the 1-year International Convention grace period, to see whether foreign applications have been filed. If the contractor has not filed and does not then intend to, the AEC will undertake such foreign filing as it deems justified by the importance of the invention.[84]

[80] Ibid.; note that this clause is not reproduced in the BNA service cited supra notes 70, 72, and 75; it is understood, however, that attention will be drawn to this change in early amendments to the service.
[81] AEC Manual, § 9113.016 (June 1957) reproduced in BNA, At. Ind. Rep., Laws & Regs., p. 235:212.
[82] Statement with respect to foreign patent rights by William Mitchell, General Counsel, AEC, in 1957 sec. 202 hearings at 301.
[83] Interview, Mr. Roland Anderson, Chief, Patent Branch, AEC, at Germantown, Md., Feb. 17, 1959.
[84] Ibid.

Note that even though the contractor may go to the expense of filing patent applications under the terms of one of the above provisos or by administrative procedure, all rights to patents so applied for by contractors will vest in the AEC, subject, of course, if in a "B" clause, to a *nonexclusive* license to the contractor for nonnuclear applications, and if a "C" clause, to a *sole* license to the contractor for nonnuclear uses, plus sole right to sublicense for nonnuclear use. The exception to the rule that the AEC secures all rights—that is, that the AEC, not the contracting company, is shown on patent office records as assignee of the patent, which is issued in the name of the actual inventor—is that under type "C" clauses, the company is at times allowed to take legal title to the patent, as assignee of the actual inventor, but is required to give the AEC a *sole* license as to nuclear applications. In such cases, the contractor may be said to hold bare legal title to the patent, as regards nuclear applications, but the AEC has, for practical purposes, ownership as to these applications. The AEC is therefore free to pursue its policy of granting royalty-free sublicenses to any American company, as regards the nuclear applications, while the contractor of course has exclusive rights as to nonnuclear applications.

Contractors may desire to so file patent applications, despite the fact that they do not acquire rights as to nuclear power uses, either to be sure that patents are filed in all jurisdictions they regard as likely markets for the particular reactor type they are developing, and where the defensive protection afforded by publication is deemed inadequate, or, where the invention has extensive nonnuclear applications, to be sure of protecting their exclusive rights as to these uses.[85] Appendixes I and II show that of a total of 2,017 patent applications filed abroad on inventions arising under AEC contracts, contractors filed 211, or in about 1 case in 10.

AEC policy in cases where contractor indicates foreign filing is desirable but that its prospective rights do not justify filing by contractor

In cases where contractors indicate that foreign filing would be desirable but that their prospective economic rights in the invention do not justify their filing, "the Commission has ordinarily made the filing after review of the subject matter." [86] The Chief of the AEC Patent Branch has stated that he knows of no case to date, where a contractor has stated that foreign filing was desirable, in which the AEC, after review, has not filed in appropriate foreign jurisdictions. In some of these cases, filing has not been carried out in all of the jurisdictions first suggested by the contractor, but the AEC and the contractor have normally agreed, in the end, as to the countries in which filing ought to be carried out. This past history of agreement does not, of course, imply that in every case arising in the future the contractor and the AEC will agree as to the necessity for filing, nor as to the countries in which filing should be undertaken.[87] Some industry patent counsel feel, however, that companies do not make a practice of requesting that the AEC file in specific foreign jurisdictions, since the companies do not acquire preferential rights by virtue of AEC filing, and hence do not make intensive efforts to secure such filing.

[85] Ibid.
[86] Mitchell statement, supra note 82 at 301.
[87] Interview, supra note 83.

Summary—Foreign patent filing under present law and AEC regulations and policy

The overall effect, therefore, of present law, as given effect in AEC regulations and policy, is that the AEC normally secures all rights to patents, both foreign and domestic, as to nuclear applications, arising out of AEC contracts and that it generally determines whether and where to file patent applications.

The contractor may, if it wishes, file domestic and foreign patent applications, but it does not thereby secure an exclusive patent-rights position as to nuclear applications of the invention, though it may secure exclusive rights as to nonnuclear applications. The contractor may thus be said to be filing as a "trustee" for the AEC and hence for all American industry, as regards nuclear uses, in view of the AEC policy of granting royalty-free licenses to all American companies.

It must be remembered that this discussion applies only to patents arising out of AEC contracts, and not to privately financed research giving rise to patents in the nuclear field. Responsibility for filing in such cases is of course solely that of the inventor.

Effect of security requirements

The foregoing patent filing practices are complicated by security requirements. Where classified data are involved, foreign applications are filed by the Commission or the contractor only where the subject matter falls within the scope of matter covered by a bilateral agreement for exchange of classified information, discussed at page 309 infra, and where the AEC is satisfied that security arrangements are adequate in the foreign patent office. The Chief of the AEC Patent Branch has stated, however, that nonfiling by reason of security complications has not in the past several years been a problem. He knows of only a few cases in which a contractor desired a foreign filing but security considerations prevented it; in one of these, the patent claim was so modified as to allow unclassified filling.[88]

Effect of conflict between interests in publication and in patenting; AEC policy in reconciling these interests

As noted above at page 298, publication of a new invention or discovery has the practical effect of barring its subsequent patenting in all countries significant in the nuclear energy field, except that patents may still be obtained during a period of up to 2 years after publication in Canada, 6 months in Germany, and 1 year in Mexico and the United States. Barring patenting means that exclusive rights, either for an American company or for the American nuclear industry as a whole, based on AEC-held patents, cannot be obtained as against possible foreign competitors. Filing in one convention country before publication, however, secures an added year for filing in all the others.

The interest in so building an exclusive-rights patent position must therefore be reconciled with the interest in maximum dissemination of technical information, with a view to fostering growth of nuclear power technology in this country and in the free world. This policy is set forth explicitly in the 1954 act [89] and is witnessed by the publication, in 1958, of some 3,800 new unclassified reports on nuclear technology, by the AEC technical information service, through the Office

[88] Ibid.
[89] 42 U.S.C. §§ 2013b, 2161b.

of Technical Services, Department of Commerce.[90] Further, since the passage of the 1954 act, a number of technical fields pertaining to nuclear power have in effect been presumed to be unclassified,[91] rather than the reverse, and consequently AEC contractors, including many universities, have been in position to publish technical papers in journals and other normal scientific media.

Since August 1957, pursuant to an AEC general instruction,[92] patent review of unclassified documents desired to be published by AEC contractors has been carried out by one of six AEC patent representatives in the field, a system designed to afford prompt review;[93] this requirement has been embodied in patents-rights clauses of AEC contracts. As a further concession to the interest in rapid publications, the AEC has excepted from patent review a number of the fields which are of greatest interest to university contractors, who typically are most interested in rapid publication, but which are least likely to involve patent possibilities, including high-energy physics, biological studies, meterology, geology, theoretical chemistry, spectroscopy, thermodynamics, and chemical kinetics.[94]

The administration of the review system is based on individual contact between the contractor and the AEC Patent Branch representative. Typically, the latter requests notice 3 to 8 weeks prior to publication of the material desired to be published, possibly in the form of a draft or preliminary report. If foreign patenting is not necessary, approval for publication is given; if foreign patenting appears desirable, the AEC requests a further 3 to 6 months' delay in publication to permit filing in the U.S. Patent Office, thereby providing a 1-year grace period in which to file in Convention countries.[95]

The only problems so far reported in the administration of this system of patent review are that university contractors sometimes fail to make a preliminary report, with a delay of 3 to 8 weeks for initial review thereby resulting, or that subcontractors of large industrial prime contractors are sometimes not aware of the requirement for prepublication review.[96]

One result of the patent-review system has been to encourage early filing of patent applications (to accomplish this before publication) on developments made by industrial AEC contractors, who may in some cases otherwise delay patenting for months or even a year or more, for various reasons, including that of desiring to build a strong know-how position in support of patents on new technology.[97]

It has been suggested by an industry representative that if AEC contractors were allowed to file private patent applications in foreign countries, the possibility of losing patent rights due to inadvertent prior publication would be avoided.[98] AEC maintains, on the other hand, that its present system of prepublication patent review is an effective working procedure combining as prompt publication as possible with the minimum chance of losing potential foreign patent rights.

[90] AEC 25th Semiannual Report 58 (January 1959).
[91] These fields include power reactors and technology, fuel elements, separation chemistry, and uranium ore processing and treatment. Interview, supra note 83.
[92] Established by general manager's memorandum (directive) dated August 2, 1957. Interview, supra note 83.
[93] Interview, supra note 83.
[94] Ibid.
[95] Ibid.
[96] Ibid.
[97] Ibid.
[98] Dr. Chauncey Starr, general manager, Atomics International, testimony before Joint Committee on Atomic Energy, 1957 sec. 202 hearings at 215.

The April 1959 Joint Committee patent hearings should provide opportunity for industry spokesmen to testify as to any case where, in their opinion, patent rights were lost by reason of prior publication or any other difficulties arose therefrom.

The General Counsel of the AEC pointed out in 1957 that in view of the act's provision that dissemination of technical information be encouraged, publication should not be unduly delayed.[99]

Patent filing as affected by tripartite agreement of September 24, 1956, between the United States, Canada, and the United Kingdom

On September 24, 1956, the Governments of the United States, Canada, and the United Kingdom entered into an interchange agreement as to inventions or discoveries in the atomic energy field on which patents were held or applied for by one government in one or both of the other countries, as of November 15, 1955, the date by which atomic energy operations had ceased to be largely a government monopoly in the three countries. Each government acquired all rights in the inventions of the others in its own country, subject to a nonexclusive license to the other governments, and assigned to the other governments the rights owned by it in the other two countries. Each assigning government retained a nonexclusive license for governmental and mutual defense purposes in the other two countries. The agreement does not commit the governments as to applications filed after November 15, 1955.[1]

The agreement permits the AEC to follow its domestic licensing policy, that is to say, to grant royalty-free licenses to American industry, with respect to patents and applications owned or filed by the Canadian and British Governments in the United States just as it does with its own domestically filed patents. It also requires, by a nondiscrimination provision, that each country shall grant licenses to nationals of the other two governments on the same terms and conditions as to its own nationals. That is, American companies may secure licenses in the United Kingdom, from the British Government, on the same terms as British companies.[2]

While the extent of business activity by American companies in the United Kingdom is problematical, due to the very active nuclear industry there, some business may be developed in Canada, in concert with Canadian industry, and in any event the AEC views the agreement as beneficial to American industry in that it eliminates the question of possible infringements or royalty payments on Canadian and British inventions patented in the United States.[3]

The relative value and numbers of the patents exchanged have not been evaluated, but the principle again applies that it is not possible to predict relative strength of patent holdings until it is known which devices will finally be used commercially: one patent in use is of greater value than a hundred not applied. Comment on the relative value of the patents exchanged may be made at the April 1959 hearings.

Dr. Starr stated in 1957 that the basic weakness of such international agreements is that American industry is primarily interested in protecting and using its own developments abroad and not in employing less well-regarded foreign systems in the United States.[4] It would

[99] Mitchell statement, supra note 82 at 301.
[1] AEC, 21st Semiannual Report, 104-105 (Jan. 1957).
[2] Id. at 104.
[3] Ibid.
[4] Atomics International statement, op. cit. supra note 54 at 273.

appear, however, that since the decision to build a 58-mw. gas-cooled reactor, to be completed in 1963 and on which AEC-industry contract negotiation was nearing completion in late 1958,[5] access to prior British and Canadian patents in the gas-cooled reactor field would at least remove any doubts as to possible infringement of British and Canadian patents in this area filed as of November 15, 1955. A representative of General Dynamics, an American gas-cooled reactor contractor, testified in February 1959 before the Joint Committee that he knew of no patent now issued which would prevent the construction or operation of the proposed gas-cooled plant, based on monitoring of patents issued in foreign countries, since the only patents found were narrow, covering specific reactor details, and since the reactor under development by General Dynamics was significantly different from those presently being developed in the United Kingdom.[6] If it is felt by industry representatives that Britain may in the future be in position to file patents of significance to American gas-cooled reactor development, and that the AEC ought therefore to consider negotiating a further agreement similar to the tripartite agreement, such views should be presented to the Joint Committee at the April 1959 hearings.

In sum, therefore, the benefits flowing from the tripartite agreements to American nuclear industry as regards business in the United Kingdom or Canada appear somewhat problematical, but the agreements may be of considerable significance to our domestic program and negotiation of a further agreement covering patents filed since November 1955 may become advisable. Since the agreement does not relate to patent rights in other countries, it will not affect the rights of United States as against British manufacturers in such third-country markets as Western European nations or Japan.

Patent filing as affected by bilateral power agreements

The United States has, in addition to the tripartite agreement, negotiated bilateral agreements for cooperation in nuclear power development, under section 123 of the 1954 act,[8] with 13 countries, including, as of the end of 1958, Australia, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Spain, Switzerland, the Union of South Africa, and the United Kingdom.[9] Exchange of technical information is an important feature of these agreements.

Where the agreement deals only with the transmission of nonclassified information, it has no special patent significance, since unclassified information is in any case rapidly disseminated via technical reports. Protection of patent rights in these cases depends upon filing applications prior to publication, as discussed above at page 298. Where the agreement provides for exchange of classified information, however, when reports are of course not published, patent provisions are required, to insure that no American patent rights are lost.

Thus the agreements with Australia, Belgium, Canada, the Netherlands, Switzerland, and the United Kingdom, providing for exchange of classified information, contain patent-rights provisions to the effect that the United States acquires rights in the United States in inven-

[5] AEC, 25th Semiannual Report 35 (January 1959).
[6] Supplementary material furnished Joint Committee on Atomic Energy, Feb. 18, 1959, following testimony Feb. 17, 1959, § 202 hearings.
[8] 42 U.S.C. § 2153.
[9] AEC, 24th Semiannual Report 28–29 (July 1958); 25th Semiannual Report 79 (January 1959).

tions made by persons under the jurisdiction of the foreign government, where the invention results from interchange of information classified when communicated under the agreement.[10] Such rights, when matured into patents, would of course be available for royalty-free, nonexclusive licensing to American industry in the United States, under present AEC licensing policy.

The six agreements noted contain further provisions guaranteeing nondiscrimination against American citizens in respect to obtaining licenses in the foreign signatory country or in third countries where the signatory may have applications or patents arising out of classified information transmitted under the agreement.[11]

There are presently in effect bilateral agreements relating to atomic power with all of the Euratom countries except Luxembourg, those with Belgium and the Netherlands pertaining to classified information and containing patent-rights provisions as just discussed. None of the bilateral agreements are to be modified by the U.S.-Euratom joint program, but will be subject to possible later renegotiation.[12] The effect of the separate bilateral agreement just concluded with Euratom as an entity is discussed at page 311 infra.

Industry representatives have expressed the view that the bilateral agreements, like the tripartite agreement, are basically of no great help to United States interests in that American nuclear technology is on a more sophisticated level than foreign technology, by reason of past American investment of effort and money, and that we are therefore trading a great deal for a probable small return.[13] It may be true that the United States will not derive great technological benefits from the bilateral agreements; the motive for their negotiation would appear to spring, rather, from such broader policy objectives as strengthening the viability of free world economies, referred to at page 2[9]4 supra, and set forth in sections 1 and 3e of the Atomic Energy Act of 1954.[14]

Even so, the patent provisions of the bilateral agreements should act to safeguard American rights in technical information communicated, as where a foreign national or government might attempt to patent an American invention or process communicated, or some

[10] AEC statement, 1957 sec. 202 hearings at 110. Texts of the several agreements for cooperation are printed in BNA, At. Ind. Rep., Laws & Regs., with the articles covering patent rights found at the pages following: Australia, 287:295; Belgium, 287:247; Canada, 287:257; the Netherlands, 287:305; Switzerland, 287:284; and the United Kingdom, 287:267 and 270 (the latter article being part of a mutual defense agreement for cooperation dealing, inter alia, with submarine propulsion reactors). The operative part of a typical patent-rights article is as follows:

"With respect to any invention or discovery employing information classified when communicated * * * and made or conceived as a result of such communication * * * the Government of the United States of America, with respect to invention or discovery rights owned by it, and the Government of ———— with respect to any invention or discovery owned by it or made or conceived by persons under its jurisdiction:

"(1) agree to transfer and assign * * * to the other all right, title, and interest in and to any such invention, discovery, patent application or patent in the country of that other, subject to a royalty-free, nonexclusive, irrevocable license for the governmental purposes of the transferring Party * * *

"(2) shall, upon request of the other, grant * * * to the other a royalty-free, nonexclusive, irrevocable license for its governmental purposes in the country of the transferring party or third countries * * *

"(3) agree that each party may otherwise deal with any invention, discovery, patent application or patent in its own country or third countries as it may desire, but in no event shall either party discriminate against citizens of the country of the other in respect of granting any license under any patents owned by it in its own or third countries * * *."

From article IX of agreement with the Netherlands, op. cit. supra at 287:305. Agreements with Australia, Belgium, Canada, Switzerland, and the United Kingdom follow substantially or exactly this wording, save that the agreements with Canada and the United Kingdom include in place of the words "or made or conceived by persons under its jurisdiction" the words "or owned by an agency or corporation owned by either."

[11] Subsections (3) of patent-rights articles of agreements, supra note 10.

[12] AEC, 24th Semiannual Report 23 (July 1958).

[13] Starr, testimony to JCAE, 1957 sec. 202 hearings at 212; Atomics International statement, supra note 54 at 273.

[14] 42 U.S.C. §§ 2011b and 2013e.

modification thereof. American nuclear industry spokesmen have commented[15] that it is possible that a foreign concern might successfully apply for a patent on an American invention not patented in its jurisdiction or in third countries, and that it might secure a patent thereon, since European patent laws in general permit patents to issue to the first applicant rather than to the original inventor.[16] If such a case were to occur, the patent-rights provision of the bilateral agreement should operate to prevent discrimination against American industry, provided title to or control of the invention were vested in the foreign government, since the agreement guarantees licenses to American companies on a nondiscriminatory basis, in the signatory country and in third countries.

Fears have been further expressed that the terms of the patent provisions are not clear, and that as they do not contain a positive requirement for the grant of licenses to foreign companies, in their own countries, a provision merely guaranteeing nondiscrimination may result in an American company's being unable to obtain a license.[17] Also, since foreign governments often charge royalties to their own nationals, an American company might be required to pay royalties on the same basis, even though it had originally developed the invention.

Plainly the best method of forestalling such situations is to insure that patent applications are filed in the United States, and then abroad within the year allowed by the International Convention. Also, the patent provisions of the bilateral agreements might be renegotiated to make it clear that U.S. nationals be entitled as of right to licenses in the foreign jurisdictions in question. Testimony should be taken at the April 1959 hearings as to desirable modifications of the patent provisions of the bilateral agreements.

Patent filing as affected by bilateral agreement for cooperation with Euratom

In addition to bilateral agreements with individual Euratom countries, those with Belgium and the Netherlands containing patent provisions as just discussed, the United States has recently entered into an agreement for cooperation with Euratom as an entity.[18]

Among other things, the agreement provides for a joint program of research and development, over a 10-year period, to be conducted in both the United States and Europe on reactor types on which development is now at an advanced state in the United States; for the first 5 years of the program, the United States and Euratom will each contribute about $50 million to the joint program.[19]

The agreement includes a patent-rights article containing two parts, one relating to inventions "made or conceived in the course of or under the joint program of research and development," and the other relating to any inventions "used in the work of the joint program."

The first part, relating to inventions arising out of the joint research program, provides, in general effect, that each signatory power receives all rights to all inventions and patents, for use either in its own jurisdiction or in any country where the patent may be filed.

[15] Starr testimony and Atomics International statement, supra, note 13, ibid.
[16] Starr, ibid.
[17] Ibid.
[18] Agreement for Cooperation, art. VII (patent provisions), printed in Joint Committee on Atomic Energy, Proposed Euratom Agreements, 85th Cong., 2d sess., 24-25 (Joint Committee print, July 1958.)
[19] Agreement, supra, note 18, art. II.

Neither party is to discriminate against nationals of the other in granting licenses or sublicenses.[20]

The Euratom bilateral agreement goes farther than any of the existing bilaterals in protecting the rights of American industry abroad, in that it not only secures nondiscrimination for American companies, as to licensing under patents held by Euratom, but it further gives the United States Government full rights to these patents in Euratom countries and others, plus the right to sublicense. This means that the AEC may grant sublicenses to American companies in any country where these patents are filed, on any terms deemed desirable by the AEC. This is the first intergovernmental agreement securing such extensive foreign rights for American industry as a whole. It has been pointed out that since the research program is to be mainly focused on fuel technology, a matter of great interest in the United States, this country stands to gain from sharing discoveries of the joint research and development program.[21]

The second part of the patent-rights provision relates to "patents used in the work of the joint program," other than those arising out of the joint program of research and development.[22] The United States is to license those patents which it owns, or as to which it has the right to grant licenses, to Euratom members or industries, on a nondiscriminatory basis, for "use either in or outside of the joint program," provided the member has agreed to similarly license the United States and American industry.

Some doubts have been expressed as to the operation of this second part of the agreement. It is said to be unclear as to whether "patents used in the work of the joint program" may include such inventions outside the nuclear field as electronic reactor controls or instrumentation, also that the fact that the license is to cover uses "either in or outside" the program means that a patent which has even incidental

[20] Agreement, supra, note 18, art. VII:

"A. As to any invention made or conceived in the course of or under the joint program of research and development:

"1. The Government of the United States of America shall without further obligation or payment be entitled to assignment of the title and rights in and to the invention and the patents in the United States subject to a nonexclusive, irrevocable, and royalty-free license, with the right to grant sublicenses, to the Community for all purposes.

"2. The Community shall without further obligation or payment be entitled to assignment of the title and rights in and to the invention and the patents in the Community subject to a nonexclusive, irrevocable, and royalty-free license, with the right to grant sublicenses, to the Government of the United States of America for all purposes.

"3. With respect to title and rights in and to the invention and patents in third countries.

"a. The Community, if the invention is made or conceived within the Community, or the Government of the United States of America, if the invention is made or conceived within the United States, shall be entitled to assignment of such title and rights, subject to a nonexclusive, irrevocable, and royalty-free license, with the right to grant sublicenses, to the other party for all purposes.

"b. If the invention is made or conceived elsewhere, the party contracting for the work shall be entitled to assignment of such title and rights, subject to a nonexclusive, irrevocable, and royalty-free license, with the right to grant sublicenses, to the other party for all purposes.

"B. As to inventions and patents under paragraph A of this article neither party shall discriminate in the granting of any license or sublicense for the reason that the proposed licensee or sublicensee is a national of the United States or any member state of the Community.

"C. As to patents used in the work of the joint program, other than those under paragraph A, which the Government of the United States of America owns or as to which it has the right to grant licenses or sublicenses, the Government of the United States of America will agree to grant licenses or sublicenses, covering use either in or outside the joint program, on a nondiscriminatory basis to a member state and to industry of a member state, if the member state has agreed to grant licenses or sublicenses as to patents used in the work of the joint program which it owns or as to which it has the right to grant licenses or sublicenses, on a nondiscriminatory basis to the Government of the United States of America and to industry of the United States, covering use either in or outside the joint program.

"D. The respective contractual arrangements of the parties with third parties shall contain provisions that will enable each party to effectuate the provisions of paragraph A and B of this article as to patentable information.

"E. It is recognized that detailed procedures shall be jointly established to effectuate the foregoing provisions and that all situations not covered shall be settled by mutual agreement governed by the basic principle of equivalent benefits to both parties."

[21] Allen, Atomic Energy and World Trade, 12 V. and L. Rev. 51 at 77 (1958).

[22] Agreement, paragraph C, supra, note 116.

use in the joint program would be made available to Euratom industries for any purpose, anywhere.[23]

It appears that this provision was included in the agreement because the Euratom governments typically own or control a considerable number of patents in nonnuclear fields, but applicable to power production generally. The AEC, by contrast, does not own or control a significant number of nonnuclear patents, and exchange of such "out-field" rights is therefore considered to be of net benefit to American industry.[24] Use either "in or outside the joint program" refers to possible use in nuclear power projects *not* part of the joint program, since Euratom countries will be building a number of reactors not sponsored by Euratom as an entity.[24a] Any ambiguities in the present agreement could perhaps be clarified by later mutual agreement, as provided for in paragraph E of the patent-rights article. The April 1959 hearings will provide opportunity for testimony or comment on any ambiguities thought to exist in the present agreement.

Industry has expressed concern as to the operation of another portion of the agreement for cooperation with Euratom, article VI, relating to "all nonpatentable information developed in connection with the joint program of research and development, and all nonpatentable information developed in connection with the selected projects, concerning designs, plans, and specifications, construction costs, operations, and economics." Under the agreement, this information is to be delivered to the signatory powers as developed, and allowed to be "used, disseminated, or published * * * for any and all purposes * * * without further obligation or payment." [24b] The "selected projects" referred to are the American-type power reactor plants, of which 1,000 megawatts of total capacity are to be in operation by 1963.[24c]

Some industry representatives fear that this article will require American industry to furnish to Euratom complete sets of drawings, plans, specifications, and cost and economic analyses relating to these American-designed plants, and they point out that while much of the research and development work on these plants will have been Government financed, the extensive engineering and design work reflected in the final plans for the plants will represent private investment. They fear that making these data available to Euratom will enable European nuclear power manufacturers to enter into effective competition with American firms at an earlier date than would be possible were such nonpatentable proprietary information not required to be revealed by the agreement.

While this is not, strictly speaking, a patent problem, it is closely related thereto and a proper matter for consideration in connection therewith. The April 1959 patent hearings will provide an opportunity for industry spokesmen to testify relative to disadvantages feared to arise out of article VI. It is true, of course, that a great deal of nonpatentable information is now published under section 141b of the present act. Further, possible disadvantages that may accrue to American industry under article VI must be weighed against the

[23] Allen, op. cit. supra, note 117 at 77.
[24] Letter, Roland Anderson to author, Mar. 4, 1959.
[24a] Ibid.
[24b] Agreement, art. VI, op. cit. supra note 18 at 24.
[24c] Agreement, preamble, id. at 22.

advantages accruing to it from the operation of the 1,000-megawatt program involving American-type reactors, also established by the agreement with Euratom.

VI. PRESENT U.S. FOREIGN PATENT POSITION UNDER EXISTING LAW AND PRACTICE

Fears expressed by industry and patent bar as to U.S. position; activity of foreign countries

Representatives of industry and of the patent bar have stated, in addresses and in testimony before the Joint Committee, that neither the American Government nor American industry has a foreign patent position of any consequence in the nuclear energy field.[25] It has been said that the AEC files abroad in only a small percentage of cases,[26] and that the AEC has neither the money nor the personnel to sustain an adequate program of foreign filing;[27] that with regard to AEC contract inventions, "foreign-patent rights go down the drain;"[28] that while the problem of possible exclusion from foreign markets by reason of foreign patents is now in its infancy, it is bound to grow rapidly;[29] and that the United States is permitting its foreign patent position to go largely by default.[30]

Figures have been cited to the effect that a study made available to the NAM of the Belgian patent situation from October 1956 to October 1957 showed that of 123 atomic energy patents, 5 were assigned to U.S. companies and 10 to the AEC, but the remaining 108 were obtained by foreign governments or companies,[31] and that a search in 1956 in 11 West European countries and Japan failed to reveal a single nuclear energy patent issued to the AEC.[32] Industry representatives have also pointed out that a number of foreign governments and companies, including France, the United Kingdom, and certain Dutch companies,[33] are pursuing vigorous patent programs in other countries.

In more general terms, industry figures have stated that industry has no economic incentive to go to the expense of filing abroad, inasmuch as the contractor will not secure an exclusive patent position in the jurisdiction in question, but only a nonexclusive license, and that the AEC's lack of vigor in foreign filing is due to the lack of economic stimulus.[34]

Present U.S. foreign patent position as reported by AEC

This issue of the adequacy of the present foreign filing program is of great importance, and should be thoroughly explored in the April 1959 hearings. The AEC patent branch reports that as of November 21, 1958, the Commission and its predecessor had filed a total of 1,806 patent applications in 22 foreign countries,[35] while contractors had filed 211 applications in 16 countries.[36] (See appendixes I and II for

[25] Dr. Chauncey Starr, General Manager, Atomics International, testimony before JCAE, 1957 sec. 202 hearings at 212.
[26] Boskey, address supra note 47 at 8.
[27] Steiger, Vice Chairman, Commission on Patents, NAM, testimony before JCAE, 1957 sec. 202 hearings at 550.
[28] Ibid.
[29] Steiger, testimony before JCAE, 1958 sec. 202 hearings at 423.
[30] Ibid.
[31] Ibid.
[32] Starr, 1957 sec. 202 hearings at 210.
[33] Id. at 211; Atomics International statement supra note 54 at 271.
[34] Starr, Atomics International, testimony before JCAE, 1957 sec. 202 hearings at 212–213; Koris, North American Aviation, remarks before AEC meeting, April 15, 1958, mimeographed, at 4–5; Steiger, Committee on Patents, NAM, testimony before JCAE, 1957 sec. 202 hearings at 550.
[35] Report supra note 74.
[36] Ibid.

detailed listing by countries.) Total filings in important industrialized or market countries include: Belgium, 54 filings by AEC plus 7 by contractors; Canada, 427 and 66; France, 60 and 14; Germany, 38 and 16; Italy, 21 and 3; India, 31 and 0; Japan, 31 and 13; the Netherlands, 33 and 7; and the United Kingdom, 381 and 54.

It thus appears that total American patent applications, whether by AEC or contractor, are in the range of 24 to 61 in countries likely to provide important nuclear markets, such as Belgium, Germany, Italy, India, Japan, and the Netherlands. Filings are much higher in Canada and the United Kingdom, but probably relatively little export trade can be expected in these areas, particularly in Britain, due to the existence of a domestic nuclear industry. From 1956 to 1958, the period in which nearly all of the above applications were filed in these market countries, 719 applications were filed in the U.S. Patent Office by the AEC.[37] (See appendix III for details of annual domestic filings.) While there is no direct correspondence between the two sets of figures, in view of the 1-year delay in filing abroad permitted by the International Convention, it appears that the AEC is filing in market countries on something between 3 percent (Italy) and 8 percent (Germany and Belgium) of the inventions for which patent applications are filed in this country. Whether these percentages are reasonable or are unduly low, in the light of all relevant circumstances, is an important matter for consideration at the forthcoming hearings. In evaluating these figures, two factors must be kept in mind: Contractors are permitted to file foreign applications, although they do not thereby secure preferential rights, at least as to nuclear applications of the invention, and if they do not wish to so file, they may request the AEC to do so. The foreign filings set forth above therefore appear to represent an AEC–industry consensus as to which patents are worth filing abroad, at least to the extent that industry is active in requesting AEC filing where industry does not care to file. Also, the foregoing figures do not cover foreign filings by U.S. companies on nuclear energy patents owned privately by them.

Data on numbers of patents actually granted, as opposed to patent applications filed, in selected European countries

Some data have been supplied as to numbers of nuclear power patents actually granted to governments or nationals of Great Britain, France, Germany, and the United States in four European jurisdictions, France, Germany, Belgium, and Spain. These figures, set forth in appendix IV, indicate that during the periods investigated in the several jurisdictions, with end dates ranging from January 1958 (Germany) to January 1959 (France) patents actually granted to European governments and nationals were substantially in excess of those granted to American industry or the AEC, except in Germany. In Belgium, through April 1958, total British patents granted numbered 95, French patents 35, and American 41. In France, through January 1959, British patents numbered 26, French patents 44, and American 14. In Germany, through January 1958, British patents numbered 1, French 4, and American 4. In Spain through November 1958, British patents numbered 52, French 4, and American 10.

[37] Report from Mr. Roland Anderson, Chief, Patent Branch, AEC, to Hon. Joseph C. O'Mahoney, chairman, Subcommittee on Patents, Trademarks, and Copyrights, Committee on the Judiciary, U.S. Senate, in response to letter of Oct. 9, 1958.

One must bear in mind that granting of patents typically follows filing by one or several years, and that these figures showing patents actually granted may thus reflect relatively few of the substantial numbers of patents filed by the AEC and contractors in 1958 or 1957. Belgium is the exception to this rule, since patents issue there in a matter of months after filing; the Belgian figures show British patents granted, as of April 1958, to be on the order of 2½ times the American figure. This difference may be significant in view of the fact that the overall British effort in nuclear power development is much less, in terms of absolute magnitude and funds invested, than that of the United States.

Strength of present U.S. foreign patent position

Whether AEC filings under the present system are adequate to protect American interests cannot be gaged from numbers of filings alone. As previously pointed out, foreign patents are relatively expensive to secure and often even more expensive to maintain, and whether or not to file on a given invention in a given country must therefore be decided on the basis of informed judgment as to what developments are likely to become important in the future. Whether this country or another secures a "stronger" patent position in a third jurisdiction can only be known, in the final analysis, when one knows which devices will be adopted for government or commercial use and which discarded. The United States may, for example, have secured nine patents on fuel elements in a particular jurisdiction, and the United Kingdom but one; it is possible that the British position might turn out to be "strongest" because their element was ultimately adopted for government or commercial use. It appears that due to the large number of avenues of reactor research being explored in the United States, the overall American patent position should be strong in foreign markets, provided sound judgment is used in filing, to exploit to the full American research and development.

Mr. Roland Anderson, Chief of the AEC Patent Branch, has stated that he believes that the program the AEC is pursuing should, if continued to be pursued at its present level, with the cooperation of industry, produce a stronger foreign patent position than might be established by filings undertaken privately by American nuclear industries.[38] As to the contract provisos allowing contractors to file patent applications abroad,[39] Mr. Anderson has stated that he knows of no case to date where the industrial contractor indicated that it deemed foreign filing significant where the AEC, after review, did not concur and file.[40] He added, however, that there was no assurance that this would always be the case in the future and that it might be that in some cases the AEC after review would not file. Such failure to file might be due to the contractor's not having provided full information to the AEC in support of the potential value of the invention warranting foreign filing or to its not having set forth a basis to assist determination by the AEC of the desirability of foreign filing in the light of the overall American nuclear power program.[41]

[38] Interview, supra note 83.
[39] See discussion supra p. 304.
[40] Interview, supra note 83.
[41] Ibid.

Whether the present system for foreign patent filing then, is producing the best possible results in terms of a satisfactory foreign patent position, or whether it can be improved on, and, if so, how, is one of the important issues to be considered and determined at the April hearings. These hearings will provide a valuable opportunity for the AEC to present its position and for industry to testify as to particular instances in which it is felt the present filing system has not adequately safeguarded the American patent position abroad.

Adequacy of AEC staff and funds for foreign patent filing

As to allegations that the AEC has neither the personnel nor the money to pursue an adequate foreign filing program, Mr. Anderson reports that the AEC Patent Branch has a total of 38 professional employees, including patent attorneys, patent and technical advisers, and patent engineers. Nineteen are engaged in the preparation and prosecution of domestic and foreign patent applications, including forwarding of foreign cases to the private patent firms who contract to handle these, while the remaining 19 are occupied with other patent matters such as negotiating patent provisions of contracts and investigating infringement claims.[42] These employees are located at the Patent Branch headquarters office in Germantown, Md., and at six separate field locations.[43] Mr. Anderson has stated that this staff, although hard pressed, has to date been able to carry out the Commission's patent program, recognizing that as volume increases, additional funds and personnel will be needed. He has reported that expenditures, on contract, for foreign patent filings have been as follows, to the nearest $1,000: Fiscal year 1957, $21,000; fiscal year 1958, $53,000; fiscal year 1959 to January 1, 1959, $40,000; and that the foreign patent program has not, in his judgment, to date been hampered by lack of funds, although foreign filings are of course undertaken only when it is concluded that a particular foreign filing may yield advantage commensurate with the expense involved.[44] This issue should be discussed at the April 1959 hearings.

One criticism, in general terms, of the administrative function of the present filing system is to the effect that while a private patent attorney normally discusses a patent application closely with the inventor, the present system amounts to an AEC attorney passing judgment, in Washington, on the merits for foreign filing of an invention made, perhaps, in Iowa, without the benefit of discussion with the inventor.[45] The merit of this criticism must, however, be evaluated in terms of specific instances where the present system has failed to safeguard American foreign rights by reason of inadequate communication from inventor to AEC attorney. The AEC notes that its field patent representative generally has access to the inventor as well as to AEC technical staff members directing the program in which the invention has been made, and that the latter often have more information to enable them to assess the patent potential of the invention in the context of the entire program than does the inventor.[46] This is again an issue for testimony at the forthcoming hearings.

[42] Report, supra note 73.
[43] Ibid.
[44] Interview, supra note 84.
[45] Steiger, Committee on Patents, NAM, testimony before Joint Committee on Atomic Energy, 1958 sec. 202 hearings at 426.
[46] Interview, supra note 83.

Contractors' dilemma as to patent filing, arising out of doubt as to eventual ownership of patent

Industry representatives have expressed concern that under section 152 of the Atomic Energy Act of 1954, atomic energy patents presumptively belong to the Government and that present AEC practice is to make no final determination of patent rights until such time as the American patent is about to issue, normally several years after filing a patent application in the United States.[47] Since the applicant must, to obtain foreign protection under the Convention, file abroad within 1 year of the domestic application, he is faced with a dilemma: If he does not file within the year, valuable foreign patent rights may be lost, but if he does file without any assurance as to his interests, he may have expended large sums of money only to lose the patent to the AEC. A patent counsel of North American Aviation stated that his company sought in several cases to obtain an early determination under section 152, or at least an advisory opinion, but "without complete satisfaction." [48]

To the extent that circumstances make an "early determination" of rights not feasible, a possible solution to this dilemma would appear to be for the company concerned to request that the AEC file abroad, coming to agreement as to the jurisdictions in which to file through correspondence with the Patent Branch. Conversely, the company might undertake the filing, subject to reimbursement by AEC. Thus, in one case where a company had filed abroad, but where it was later determined that the AEC had sole rights to the invention under the terms of the contract in the case, the company was reimbursed for the expense involved in foreign filings it had undertaken, since it was deemed that the invention justified filing in all the jurisdictions in which the company had in fact filed. A disadvantage, from the company's standpoint, is that the AEC will not guarantee in advance to reimburse contractors in such cases, as it may conclude that foreign filing was not justified, or was not justified in all the countries in which applications were filed by the contractor.

VII. UTILITY OF PATENTS HELD IN PRIVATE AS OPPOSED TO GOVERNMENT OWNERSHIP

The central contention made by representatives of the U.S. nuclear industry is that the interests of the industry and of the Nation will be better served if industry is allowed to acquire ownership or preferential rights in foreign patents than if the present system, under which the AEC holds title to patents, is continued. Some of the reasons advanced by industry bear on the functioning of present system for obtaining foreign patents, discussed at page 303 above, but others relate to the use which may be made of the patents once they are secured. Since these basic issues should comprise one of the major areas for discussion at the April hearings, it should be helpful to set forth possible effects of private as opposed to AEC patent ownership, in terms of the major objectives, discussed at page 300 supra, that the patent system is deemed to serve.

[47] Starr, testimony before Joint Committee on Atomic Energy, 1957 sec. 202 hearings at 213.
[48] Koris, remarks supra note 34 at 13.

Exports under patent protection

Patents held either privately or by the AEC will help prevent exclusion of American manufacturers from foreign markets by reason of foreign-owned patents and prevent levying of royalties upon items exported into these markets.

Licensing foreign patents for direct profit

Private ownership of foreign patents, so that these might be licensed to foreign companies for profit, might provide an added economic incentive for U.S. industry to invest in the nuclear field; the extent to which expectation of an exclusive patent position would actually induce investment is not, however, clear and is an appropriate issue for discussion at the forthcoming hearings.

Under the present system, the AEC does not license nuclear patents abroad for profit. Mr. Anderson, Chief of the Patent Branch, AEC, states that the Commission might change this policy, although it must be recognized that such a change would represent an important shift in Government patent-administration policy. The present act does not, however, preclude the AEC from making such a change, if this appears to be in the public interest.[49]

To date, the AEC has issued royalty-free licenses on Government-owned foreign patents to American companies, but no licenses to foreign firms,[50] because AEC policy as to licensing foreign companies has not yet been fixed. The policy of foreign governments as to licensing nuclear energy patents which they own, in their own countries, is only now taking shape, but it appears that nearly all the industrialized European countries will be charging royalties on both domestic and foreign patents to all companies, foreign or domestic; Canada and the United Kingdom accord royalty-free licenses, both domestic and foreign, to the contracting company which made the invention, but charge other companies royalties.[51] Further, they would be in position, if they so chose, to discriminate against foreign companies, except American companies where the patents fall within the provisions of bilateral agreements with individual countries or with Euratom.[52] It should be noted here that even were U.S. companies charged the same license royalty as foreign concerns, the American manufacturer might still operate under handicaps arising out of import duties and the higher labor costs prevailing in this country.

The Commission is in position to adopt a policy of issuing licenses on foreign patents royalty-free to American companies but charging royalties to foreign companies, except where this is forbidden by the terms of the Euratom bilateral agreement or of those with Australia, Belgium, Canada, the Netherlands, Switzerland, or the United Kingdom. The AEC recently reported that it had under study the policy to be followed in granting licenses on its foreign patents to foreign nationals or companies,[53] and indicated that it will be interested in views expressed by the Joint Committee at the April 1959 hearings or later, as guidance in setting such policy.

[49] Interview, supra note 83.
[50] Ibid.
[51] Letter, Mr. Roland Anderson to Mr. David Toll, staff counsel, Joint Committee on Atomic Energy, Oct. 30, 1958.
[52] Interview, supra note 83.
[53] Letter, supra note 51.

Preventing appropriation or unauthorized use

Private companies are of course normally able and willing to enforce patent protection by litigation, where necessary. Industry representatives have expressed fears that the AEC would not have any motivation to sue a foreign national or government for patent infringement, since the AEC would not be economically damaged by the infringement. They point out that the Government has historically never enforced its foreign patent holdings, and suggest that the AEC would be highly hesitant and possibly embarrassed to sue on its foreign patents for fear of adverse reaction by foreign governments.[54]

Dr. Chauncey Starr, general manager of Atomics International, has also expressed the belief that AEC-held patents could not be used as a counterforce or for negotiation in defense of an American firm sued on the basic reactor patents now held by foreign groups.[55]

This issue of the affirmative use of patents, in litigation or for negotiation, as contrasted with their defensive use merely to protect American industry's rights to enter markets, is perhaps the foremost patent issue between the Government and industry today, insofar as foreign atomic energy patents are concerned. Industry usually favors and stresses affirmative use; Government policy has to date followed defensive lines.[56] There appears to be widespread feeling in industry that so long as foreign patents are not actively used, few advantages accrue from their ownership and that the defensive benefits that result from preventing exclusion from foreign markets may be achieved about as well by publication.

This complex but important issue of the possible affirmative use of patents by the AEC should be thoroughly investigated at the April 1959 hearings. Consideration should be given to such relevant aspects as the influence of political and diplomatic considerations, the significance of patents as an asset in negotiating international agreements, practical problems in suing infringers and selecting licensees, the degree to which AEC patent policies can be set apart from other Government patent policies, and the necessity, extent, and complexities of Government-industry cooperation required by a policy of affirmative use.

Licensing foreign subsidiaries or affiliated companies

Industry representatives point out that if title to foreign patents were held by U.S. companies, they would be in position to license foreign affiliates or subsidiaries on an exclusive basis, a factor which might prove valuable in negotiating affiliation agreements or, to a lesser degree, in allowing foreign subsidiaries to compete effectively in their own domestic nuclear markets. With patents held by the AEC, however, exclusive licensing is not possible unless present AEC policy is changed. Whether this disadvantage is offset by the fact that at present—and probably for the next 5 to 10 years—the technical know-how position of American companies comprises their major element of attractiveness to foreign industry is an open question. When the foreign companies or government atomic agencies have

[54] Starr letter to Chairman, JCAE, in 1957 sec. 202 hearings at 303; Atomics International statement, at 269.

[55] Starr letter, ibid.

[56] Mr. Anderson has stated that while it is true that the Government has historically not enforce foreign patent rights, it is also true that Government agencies other than the AEC have held title to very few foreign patents, and that the lack of a past history of enforcement by other agencies does not preclude the AEC from enforcing its growing body of patent holdings. Interview, supra note 83.

achieved a similar level of know-how, however, the patent holdings American companies might then be in position to offer would probably become more important. In any overall evaluation of these issues, consideration must be given to the advantages which may reasonably be expected to accrue to the United States as a whole from the existence of subsidiary companies partly owned by American concerns.

Cross-licensing agreements

If U.S. companies hold title to foreign patents, they may, when advisable, trade patent rights they hold abroad for U.S. patents owned by a foreign party, to the benefit of both parties.

The AEC might be able to conclude similar exchange agreements, if it should occur in the future that foreign-held U.S. patents were being or might be used to block certain avenues of development here. Provided the AEC builds a substantial holding of foreign patents, it could negotiate agreements either similar to the tripartite agreement with Canada and the United Kingdom, exchanging rights to all government-owned patents in the respective jurisdictions, or more limited in scope, applicable to particular patents only. A number of problems might arise in the administration of such a system, however. For example, one American company might desire the AEC to secure rights to certain foreign-owned patents in this country, but another company might be injured by the loss of the American-held foreign patents proposed to be traded away, especially if it were the inventor-contractor, and were engaged in overseas work in the field covered by the patents to be traded away. This and similar problems should be investigated at the forthcoming hearings.

Prestige

If patents are owned by the AEC, specific industries would not derive directly that prestige which is said to flow from possession of a body of patents in a foreign country. This advantage might be largely offset, however, by the prestige that would result where it was known or made known that the research and development organization of that company had done the work resulting in particular AEC-held patents, and that the company further possessed know-how to back up the development work done earlier.

Summary—Economic incentive arising out of exclusive patent rights the paramount issue

In general terms, industry spokesmen have stated that the AEC, even if it builds a strong foreign patents position, will use these patents only defensively, that is, to prevent outright exclusion of American exports from foreign markets, and that the same advantages can be had by mere publication, which of course bars patent applications on the published invention by any applicant.[57]

The AEC, on the other hand, is not legally barred from using its patent holdings offensively, that is, from suing infringers abroad, even though it has not heretofore used them in this way, nor from using AEC-held patents for exchange agreements, to insure that American industry is not blocked from promising avenues of development by reason of foreign patent holdings.

A central issue as to the relative utility of foreign patents under private as opposed to AEC ownership therefore centers on arguments

[57] Ibid. Atomics International statement, supra, note 54, p. 320 at 268-269.

as to *economic incentive* and policy and diplomatic considerations. Will the nuclear power industry, and the United States generally, benefit more from private as opposed to public patent ownership, allowing a particular company to secure an exclusive position either at home or abroad or both? The economic advantages flowing from this exclusive position would largely be generated by that manufacturer's ability to license foreign patents for direct profit and to license foreign subsidiaries or affiliates.

The case for industry has been ably put by Dr. Starr, in arguments applicable to domestic as well as foreign patent ownership.[58] He states that while research and development on atomic power is largely Government financed, the manufacturer at this stage makes large investments of management ability and know-how. After Government support ends, the manufacturer is obliged to invest further sums, often equal to the value of the Government-supported research and development, to construct a prototype, to market the reactor to a utility, and finally to build the commercial power station. During this period he becomes economically vulnerable, in that he is committed to an expensive course of development investment, which he is unable to pay off until substantial sales of equipment are made. Dr. Starr states that even with the advantage of a proprietary patent position, competition normally enters a successful technical field rapidly, so that the market tends to become saturated and profit margins to decline within a relatively small number of years. In the atomic energy field, where by reason of the 1954 act it is impossible to build a proprietary patent position, but only a know-how position, a rapidly wasting asset, it is particularly easy for "free loaders" to enter the field late and to build upon the efforts of the pioneers.[59]

It has been asserted that the net result of the lack of economic incentives, under present laws and policy as to nuclear energy inventions, has been that companies have adopted a policy of caution as regards long-range investment programs. A number of companies are said to be maintaining small nuclear study groups and will enter the field when economic opportunities improve, meantime devoting their energies to more profitable activities. Furthermore, it is contended that a distressingly large number of companies have withdrawn from the nuclear energy field in the last year, while others have reduced their activities.[60]

The position of the AEC, on the other hand, is that since the Government pays research and development costs, it should take title to inventions resulting, or, on a broader view, that the public interest in rapidly expanding nuclear power technology will be better served by leaving the field open—at least as regards patents as opposed to know-how—to later entrants as well as to pioneers than by allowing the pioneer companies to build exclusive patent positions, access to which must be purchased by later entrants by paying royalty fees for licenses. It must be remembered too that the pioneer companies are in no way prevented from building an exclusive-rights patent position on inventions which do *not* arise out of Government-

[58] Starr, "The Manufacturer Looks at Proprietary Rights in Atomic Energy," address before Federal Bar Association, Washington, D.C., November 25, 1958.
[59] Ibid.
[60] Koris, remarks, supra, note 34 at 4–5.

financed research. In short, the AEC position, at least as of February 1957, was that allowing companies to obtain exclusive patent positions on Government-financed development would be to allow them "an undue advantage." [61]

Since the issue of economic incentive is at the heart of the controversy over private as against Government-owned patents, testimony should be taken at the April 1959 patent hearings bearing on the actual economic effects of the present patent provisions and policy.

VIII. PROPOSALS BY AMERICAN NUCLEAR INDUSTRY FOR CHANGES IN PRESENT LAW, REGULATIONS, AND POLICY RELATIVE TO FOREIGN PATENTS

Industry representatives have advanced a number of proposals for changes in present law or policy, directed to securing advantages which they feel present law and policy do not adequately foster.

Industry to take title to patents, subject to royalty-free license to AEC for governmental purposes

As just set forth, the basic and nearly unanimous position of spokesmen for the American nuclear industry is that individual companies should be allowed to file for and to take title to foreign patents, largely on grounds of the economic incentives that will thereby be generated, with the Government to have a royalty-free license for its purposes.

Industry spokesmen have on a number of occasions advocated that this approach be implemented by means of a change in the patent provisions of AEC contracts.[62] Dr. Starr has suggested that the 1954 act be amended to give this policy the force of law, and has drafted a short proposed amendment to section 152 of the act,[63] to accomplish this purpose. If it came down to a choice between these two approaches, amendment of the act would appear preferable to attempting contract changes under the present act, as a method of securing the result desired, in view of the broad language of present section 152 that "*any* invention or discovery * * * shall be deemed to have been made or conceived by the Commission. * * *" [Italics supplied.][64] While the AEC has power under section 152 to waive its claims to inventions, this power would seem to have been included in the act for purposes of waiving claims in specific instances or type of relationship, rather than in blanket fashion.

Under this approach, with industry taking title to patents, the inventing contractor would be free to file patent applications where deemed advisable and to employ these in any manner desired. It would be free to license other companies or not, in the United States and abroad, as it deemed advisable, and at such rates as it deemed advisable.

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[61] Mitchell, General Counsel, AEC, statement to JCAE, 1957 sec. 202 hearings, at 301.

[62] Starr, 1957 sec. 202 hearings at 214; Atomics International statement, supra, note 54, p. 299 at 276; Koris remarks, supra, note 34 at 16; Steiger, NAM, 1958 sec. 202, hearings at 424.

[63] Starr, 1957 sec. 202 hearings at 303, the proposed amendment, which would be to 42 U.S.C. § 2182, reading as follows: "Notwithstanding anything in this chapter, whenever the invention or discovery is made or conceived under any contract, subcontract, arrangement, or relationship with the Commission to which the Commission has not waived its claim, the maker of such invention or discovery or his successors and assigns may file a patent application thereon in any country outside the United States, subject to security provisions and regulations, and shall retain the entire right, title, and interest in any resulting patent application or patent: *Provided*, That the United States shall be granted, for governmental purposes, a nonexclusive, irrevocable, royalty-free license under any such patent application or patent."

[64] 42 U.S.C. § 2182.

Inventing contractor to take title to patents, subject to royalty-free license to AEC for governmental purposes, and subject to obligation to license the remainder of U.S. industry at reasonable royalties

Dr. Starr, in November 1958, advanced a modification of the proposal above. Under his proposal the inventing contractor would file application for and take title to patents developed in its work, but would be obliged to grant licenses to other industry at reasonable royalties, on a nondiscriminatory basis.[65]

This proposal would allow the contractor to retain control of the patenting process, but would modify his exclusive-rights position. The degree of economic incentive generated by this approach would depend upon the level at which the reasonable royalties were fixed, and implies some AEC mechanism for monitoring or regulating the fixing of the royalties, taking into account all the equities of each licensing situation.

Further testimony as to the expected operation of such a system should be adduced at the April 1959 hearings, for it also would require amendment of section 152 of the present act.

Government to take title to patents, inventing contractor alone to have royalty-free license

Some industry representatives have suggested that present practice be modified to the extent that the inventing contractor only be allowed a royalty-free license, with the remainder of American industry to be charged royalties.[66]

This proposal would involve no change in existing law, but would require a change in AEC policy to establish a system of royalty charges, and would require a modification of the patent-rights provisions in new AEC contracts. Decisions as to whether and where to file patent applications, and the administration of patents secured would remain unchanged. Precedent for this type of preference to the inventing contractor only exists in present British and Canadian practice, as set forth at page 315 supra.

The degree to which such a scheme would increase economic incentives in the nuclear-energy field and would in fact increase investment would depend upon the royalties charged by the AEC. Some type of royalty-fixing process in the AEC again appears to be implied.

Testimony as to the predicted advantages and operation of this system should be presented at the April hearings.

Summary of industry proposals for modifications

The proposals set forth by industry thus extend over a spectrum ranging from full rights being granted to the inventing contractor, by a change in the present act, to a mere preference as to royalties, which can be accomplished by a change in AEC royalty policy under the existing act. The extent to which such proposals would in fact affect the development of the American nuclear industry should be investigated as thoroughly as possible at the April patent hearings before the Joint Committee.

[65] Starr, op. cit. supra, note 59.
[66] Interview, supra, note 83.

Effect of change in patent-filing provisions of act as related to AEC obligation to encourage dissemination of technical information

It should be noted that if the act were so amended as to give industry the right to determine when and where patent applications were to be filed, the AEC might in some cases be placed in a difficult situation as regards its obligation to encourage dissemination of technical information, imposed by section 3 and 141b of the present act. First, the AEC would not receive technical information, unless the present requirement in section 151 as to reporting inventions to the AEC were left in the act or a similar requirement provided. Second, the AEC would in every case be obliged to check with the manufacturer to see if publication were possible, or whether such publication might destroy patent rights, thereby giving rise to possibly extensive damages on the part of the manufacturer against the Government. In effect, the manufacturer would be able to postpone publication as long as it needed or desired to delay patent application, a situation which appears inconsistent with the AEC's present obligation to encourage dissemination of technical information.

IX. SUMMARY AND CONCLUSIONS

It appears that export trade may account for as much as one-quarter to one-half of all American nuclear power business in the next decade (see p. 296 supra), although export trade will probably decrease thereafter, as foreign concerns acquire experience and know-how in the nuclear power field. Whatever the exact figures, export requirements seem sure to comprise a very substantial proportion of American nuclear business in the years ahead, and international patent problems must therefore be examined in this context. In addition to direct exports, foreign nuclear power business may well increasingly take the form of activity by foreign subsidiary companies, owned jointly by American and foreign companies. (See p. 296 supra.)

Foreign patents are expensive to secure and to maintain (see p. 299, supra,) and they are not, therefore, filed in every case where a patent is filed in the United States; foreign filing represents an act of judgment, based on an appraisal of what inventions are likely to become important in the future.

The actual influence of the presence or absence of a foreign-patents position on the extent of overseas business activity is not known, but investors and their patent counsel understandably desire the best protection possible (supra, p. 302.)

Under present law and AEC regulations and policy as to foreign patent filing, the AEC normally secures all rights to patents, both foreign and domestic, as to nuclear applications, where the patent arises out of AEC contracts, and the AEC generally determines whether and where to file patent applications. (Supra, pp. 303 to 304.) The contractor may, if it wishes, file domestic and foreign applications at its own expense, but it does not thereby secure any exclusive-rights position, as the AEC retains the same rights as if it had filed the applications. (Supra, pp. 304 to 305.) Patents arising out of research privately financed are of course the property of the inventor and he is responsible for appropriate filing.

Industry spokesmen have alleged in general terms that the present system of filing foreign patents has resulted in a foreign-patent position inadequate to protect American interests in foreign markets (supra, p. 314.) The AEC, on the other hand, has supplied figures showing that the AEC is filing in market countries on something between 3 percent (in Italy) and 8 percent (in Belgium and Germany) of the inventions for which patent applications are filed in this country. The AEC position is that this program is based upon the best present judgment as to which patents filed in this country are worth filing abroad, and that the present program has produced as strong as or a stronger foreign patent position than would be established by filings undertaken privately by American nuclear industries; also that, as contractors are permitted to file abroad, or if they do not wish to do so, to request that the AEC file, the present program represents an AEC-industry consensus as to which patents are worth filing abroad. (Supra, p. 315.)

General allegations that the present American foreign-patent position is not adequate must be regarded at this time as not proved, but the issue is sufficiently debatable as to warrant careful scrutiny at the April hearings.

There appears to be no inherent reason why patents owned by the AEC cannot be *used* offensively; that is, AEC patent holdings in foreign jurisdictions could be used not only defensively to allow American exports into those markets and to avoid payment of royalties to domestic patentees, but they might be used in negotiation and for possible patent exchange agreements with foreign governments or industries, and they might, if necessary, be enforced by litigation. (Supra, p. 320.) Such a policy of active use and enforcement would require an important change in previous Government and AEC policy in patent administration. The manner in which patents are actually used is of great importance in comparing the benefits accruing to American industry and to the United States in general under the present policies with respect to AEC-held patents, with the benefits that might accrue under a system which left the ownership or preferential rights in foreign patents with private concerns. Consequently, the considerations that attend a policy of offensive use should be thoroughly explored at the April hearings.

The heart of industry's position on patent titles centers on arguments as to the economic incentive which would be generated by a system of exclusively held patents, as opposed to the present system, in which the AEC holds title to nuclear energy patents and makes them available without charge to all of American industry. Industry representatives have stated that the present system does not give enough incentive to industry to pioneer in the nuclear energy field, and that a number of companies are hanging back, intending to enter the field at a later date, building upon the work done by the pioneering concerns, largely by way of using the patents arising out of work by them, made available free of charge by the AEC under present policy. (Supra pp. 321 to 322.)

Proposals made by industry spokesmen for changes in present law and policy as to nuclear power inventions and patents include the following:

(1) A change in the present act to allow the contractor to file for and take title to foreign patents. This would allow an exclusive-

rights position to the contractor, and would, in the industry's view, generate economic incentives not existing under present law.

(2) A variant of the first proposal involves a change in present law whereby the inventing contractor would file application for and take title to patents arising out of its work for the Commission, but would be obliged to grant licenses to other American industry at reasonable royalties, on a nondiscriminatory basis. This proposal would accord the contractor only a modified exclusive-rights position, and implies that some AEC body would regulate the royalty rates.

(3) Some industry representatives have suggested that present AEC licensing policy be changed to provide that only the inventing contractor be allowed a royalty-free license, with other companies to be charged royalties for the use of patents, a proposal which is similar to British and Canadian practice.

It must be noted that if the act were amended to permit contractors to determine whether and where to file patent applications, it would also require amendment to relieve the AEC of the obligation to publish technical information, since the two provisions would be inconsistent. (See supra p. 325.)

The purpose of the foregoing summary and conclusions is to highlight the issues into which the Joint Committee must inquire at the April 1959 patent hearings to obtain a basis for deciding the central issue as to foreign patent rights in nuclear energy inventions which arise out of AEC-contracted work. That central issue is this: Ought the Government to retain substantially all rights as to patents filed in foreign countries, on Government-financed work, these patents then being made available to all American companies free of charge under present AEC policies, or ought the present act to be amended to permit industry contractors to acquire ownership or preferential rights in patents filed abroad and hence an exclusive-rights position, access to which must be purchased by other American companies?

In considering and deciding this basic issue, three determining factors must be kept in mind: First, the issue as to who shall *own* the patents is intimately bound up with the question of how such patents will be *administered*, whether they are in the Government's hands or in private hands. Second, in that one cannot predict today with reasonable certainty what may be the best course to follow tomorrow, the wisest immediate course will be that which assures to the Government maximum flexibility and freedom of choice in making its later decisions, to the extent that such flexibility can be preserved without incurring seriously adverse effects. Third, as this last qualification suggests, one must be alert to avoid action which, though taken in the interest of legitimate expediency and hopes of future benefits, may have immediate or long-run effects contrary to a public interest that is concerned, of course, with protecting and furthering legitimate business interests on both the domestic and foreign fronts, but is concerned as well with healthful technological development and innovation, national security, and the preservation and strengthening of a balanced free competitive enterprise system. A technical factor to be kept in mind is that research into the possibilities of power derived from nuclear fusion is now just commencing; the patent implications of fusion processes cannot be ignored.

As a specific implementation of the foregoing general considerations, and as a guide to those who may be called upon to testify at the April hearings, the following are suggested as appropriate questions for consideration at that time:

Efficacy of present system in securing foreign patents

Are present patent filings by the AEC and industry adequate to secure the best possible foreign patent position for the United States? (See discussion supra, p. 316.)

Are AEC Patent Branch staff and funding adequate to carry on a satisfactory foreign filing program? (See p. 317.)

Have foreign patent rights been lost or impaired by reason of inadequate communication between the inventor and the AEC Patent Branch? (See p. 317.)

Have foreign patent rights been lost or impaired by reason of premature publication? (See p. 307.)

Effects of international agreements

What advantages have accrued to the United States from the tripartite agreement for interchange of nuclear energy discoveries and inventions, between the United States, the United Kingdom, and Canada? (See p. 309.)

What disadvantages, if any, have accrued therefrom?

Are any modifications of patent-rights provisions of bilateral agreements required? (See p. 311.)

Are there any ambiguities requiring modification in the portion of article VII of the bilateral agreement with Euratom relating to patents "used in the work of the joint program" but not arising out of the joint program of research and development? (See p. 313.)

Does article VI of the bilateral agreement with Euratom unduly handicap American manufacturers by forcing them to reveal design information to Euratom? (See p. 313.)

Use and administration of foreign patents secured

What is the relative value to industry of the protection afforded by patents filed abroad as compared to that afforded by publication? (See p. 320.)

What are the pros and cons with respect to the AEC's use of its foreign patents affirmatively, in litigation or negotiation? What problems would be encountered if this were done? (See p. 320.)

What are the pros and cons with respect to the AEC's use of its foreign patents for exchanges with foreign governments, to prevent American industry from being blocked by foreign-owned patents in this country? What problems would be encountered in such exchanges? (See p. 321.)

What policy ought the AEC to adopt relative to charging royalties on its foreign patents to foreign governments or nationals? (See p. 319.)

Economic effects of present foreign patent system

To what extent are companies hanging back from entering the nuclear power field, in anticipation of building on the technology developed by pioneer companies? (See p. 322.)

To what extent are companies dropping out of the field or curtailing operations, in anticipation of a later return after pioneering companies have charted the way. (See p. 322.)

What are the considerations that should determine whether additional companies, beyond those presently active in the nuclear power field, should be brought into that field to meet the needs of the country for development of economic nuclear power, both for domestic purposes and in support of our foreign policy?

To what extent have exchange agreements with foreign industry in fact been negotiated by American companies, as to know-how and privately owned patents?

To what extent do foreign patent holdings, either government or private, influence levels of foreign trade and investment by the American nuclear industry? (See p. 323.)

Economic effects of proposed modifications of present system

To what extent would granting private ownership or preferential rights in foreign patents only, as distinguished from domestic patents, affect economic incentives and actual investment in the nuclear power field by American companies? (See p. 323.)

To what extent would economic incentives and actual investment be increased if the inventing contractor were allowed to acquire ownership or preferential rights in patents, subject to an obligation to license other American companies at reasonable royalties? Would such a system require AEC regulation of royalty levels? What other operational problems would arise? (See p. 324.)

What would be the effect upon economic incentives and actual investment if the AEC continued to take title to patents, allowing a royalty-free license to the inventing contractor, but charged royalties to other American companies? What problems would arise in fixing royalties to be charged? (See p. 324.)

What would be the effect of the foregoing changes in policy upon the competitive vigor and competitive balance of American industry, whether in the nuclear power field or in other fields?

Appendix I

Applications for Patents Filed in Foreign Countries by the Atomic Energy Commission or Predecessor, 1943–58

Country	1943–46	1947–55	1956	1957	1958	Total
Argentina				4	3	7
Australia		5	3	20	21	49
Belgian Congo					3	3
Belgium			2	19	33	54
Brazil				6	6	12
Canada	242	35	47	38	65	427
Denmark				1		1
France			3	22	35	60
Germany				14	24	38
Great Britain	239	29	24	40	49	381
Greece					1	1
Holland			2	16	15	33
India			1	13	17	31
Italy			1	11	9	21
Japan				11	20	31
Mexico				1	3	4
Norway				1	2	3
Portugal				2	1	3
Spain				1	2	3
Sweden				3	9	12
Switzerland				2	2	4
South Africa		7	3	11	7	26
Total	481	76	85	236	327	1,806

Source: AEC Patent Branch.

Appendix II

Applications for Patents Filed in Foreign Countries by Contractors of the Atomic Energy Commission, or Predecessor, on Inventions Arising Under Commission Contracts, 1943–58

Country	1943–46	1947–55	1956	1957	1958	Total
Australia			1	1		2
Belgium		1	2	3	1	7
Canada	26	29	5	6		66
Chile		1				1
France		2	5	5	2	14
Germany		6	4	4	2	16
Great Britain	18	23	7	6		54
Holland		5	1	1		7
Italy				2	1	3
Japan		4	6	2	1	13
Norway		5	1	1		7
Peru		1				1
South Africa		5				5
Southern Rhodesia		1				1
Sweden		4	1	2		7
Switzerland		4	2	1		7
Total	44	91	35	34	7	211

Source: AEC Patent Branch.

Appendix III

Patents Applied for, Obtained, and Owned in the United States by the Atomic Energy Commission or Predecessor, 1942–58

The following breakdown shows U.S. patent applications applied for, U.S. patents obtained, and U.S. patents owned by the U.S. Atomic Energy Commission. The figures for the years prior to August 1, 1946, reflect the action of the predecessor, Manhattan District, Corp of Engineers, War Department, and the special project (S–1) of Office of Scientific Research and Development:

	U.S. patent applications applied for	U.S. patents obtained	U.S. patents owned [1]
1942	14		
1943	74		
1944	319		
1945	531		
1946 to Aug. 1	291	1	1
Aug. 1 to Dec. 31	145 (436)		
1947	282	13	13
1948	225	33	32
1949	203	47	54
1950	234	139	139
1951	203	166	166
1952	244	146	146
1953	274	113	118
1954	268	123	132
1955	265	139	145
1956	253	250	260
1957	260	252	253
1958 to Nov. 15	206	379	379
Total	4,291	1,801	1,838

[1] Title in United States—licenses of one nature or another may have been retained by the contractor.

In view of the time delay between the filing of application and the issuance of patent thereon, there is of course, no direct correlation between the number of applications filed and the patents issued in a given year. Prosecution time is ordinarily between 3 to 4 years where there is no classification involved and in classified cases the time between the filing of the application and the issuance of a patent may be a much longer period.

Source: AEC Patent Branch.

APPENDIX IV

NUCLEAR POWER PATENTS GRANTED IN SELECTED EUROPEAN COUNTRIES

Note that these figures refer to patents *granted*, rather than to patent applications filed, as in appendixes I to III; granting of patents normally occurs several months to several years after filing application.

Country in which patents were granted and final dates covered by investigation

Patent owner	Belgium (through April 1958)	France (through January 1959)	Germany [1] (through January 1958)	Spain (through November 1958)
British Government	47	9	0	19
British nationals	48	17	1	33
Total, British patents	95	26	1	52
French Government	35	23	4	4
French nationals [2]	([3])	21	0	([3])
Total, French patents	35	44	4	4
German nationals [2]	([3])	9	30	([3])
Miscellaneous European governments	9	14	8	4
Miscellaneous European nationals	42	30	5	17
Total, miscellaneous European patents	51	44	13	21
U.S. Government	17	0	0	1
U.S. nationals	24	14	4	9
Total, U.S. patents	41	14	4	10
Total	222	137	52	87

[1] German patents listed include provisionally granted patents as well as those actually granted.
[2] Figures for patents granted to French and German nationals are given only for France and Germany; in Belgium and Spain the few patents granted to French or German nationals are included under miscellaneous European nationals.
[3] Not listed separately.

Source: Investigations undertaken in the several foreign jurisdictions noted on behalf of Atomics International, Inc., a division of North American Aviation, Inc.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C., October 30, 1958.

MR. DAVID TOLL,
Counsel, Joint Committee on Atomic Energy,
Congress of the United States, Washington, D.C.

DEAR MR. TOLL: In connection with the Joint Committee staff study, you inquired as to the contract and licensing policies pursued by the Canadian and British Governments in the atomic energy field as compared with the practices of the U.S. Atomic Energy Commission. The following is a brief comparison of the practices of the U.S. Atomic Energy Commission with those of the Atomic Energy Control Board of Canada and the United Kingdom Atomic Energy Authority as to inventions of employees and contractors and the patent licensing policies without reference to the statutory provisions.

1. RIGHTS IN INVENTIONS OF RESEARCH AND DEVELOPMENT CONTRACTORS

A. United States

The U.S. Atomic Energy Commission usually acquires all rights, both domestic and foreign, in inventions of contractor employees in the field of atomic energy. Where the invention has uses in other fields, the contractor depending on his industrial position may retain

rights for such nonatomic industrial uses. Upon request, contractors as well as noncontractors are accorded nonexclusive licenses in AEC owned inventions.

B. Canada

The Canadian Government, including the Atomic Energy Control Board of Canada, provides in contracts for acquisition of all rights, both domestic and foreign, in inventions in the atomic energy field, usually according the contractor a nonexclusive, royalty-free license in both domestic and foreign patents.

C. United Kingdom

The United Kingdom Atomic Energy Authority acquires all rights, both domestic and foreign, in all inventions made in the atomic energy area with the contractor usually being accorded a nonexclusive, royalty-free license in both domestic and foreign patents. Where the invention is of general application, ownership may be left with the contractor subject to a nonexclusive license to the Authority and the United Kingdom Government.

General

It will be seen from the foregoing brief analysis that the three governments' policies appear very similar in that all acquire by contract the rights in inventions of contractor-employees in the atomic energy field. The United States accords not only the contractor but anyone a nonexclusive, royalty-free license upon request. The Canadian and United Kingdom Governments, by contract, accord only a nonexclusive, royalty-free license to the contractor. Others, as noted hereinafter (see items 3 and 4), are charged royalties.

2. INVENTIONS OF AGENCY EMPLOYEES

A. United States

The Atomic Energy Commission follows the practice of having each employee execute an agreement under which the AEC may acquire all rights both domestic and foreign in inventions of its employees. The AEC may release rights to the employee under certain circumstances.

B. Canada

The Atomic Energy of Canada, Ltd., pursuant to a general statute, acquires all rights, both domestic and foreign, in inventions of employees of the AECL.

C. United Kingdom

The United Kingdom Atomic Energy Authority acquires ownership, domestic and foreign, in inventions of Authority employees although it may release certain inventions under given circumstances subject to United Kingdom Government rights.

General

The present employee practices are similar except that in Canada it is pursuant to a general statute.

3. DOMESTIC LICENSING POLICIES ON GOVERNMENT-OWNED PATENTS

A. United States

The policy of the AEC has been to accord royalty-free, nonexclusive licenses to all applicants on U.S. patents owned by the Commission.

B. Canada

Atomic Energy of Canada, Ltd., in its contracts, generally accords the contractor a nonexclusive, royalty-free license but others are granted a nonexclusive license on Canadian patents at a royalty fixed at a rate designed to cover exploitation but not development costs. The Canadian Government may in special circumstances grant an exclusive license for royalties in Canadian patents owned by AECL.

C. United Kingdom

The United Kingdom Government in its contracts generally accords the contractor a nonexclusive, royalty-free license but others are granted a nonexclusive license on British patents owned by the authority at royalty rates from 2½ percent to 10 percent of the selling price of the patented article. The United Kingdom Atomic Energy Authority may grant exclusive licenses in exceptional circumstances at such royalty rates.

General

It will be seen that the Canadian and British policies differ from the United States in that they charge royalties for nonexclusive licenses on domestic patents subject to the contractor, generally, having a nonexclusive, royalty-free license. The AEC, on the other hand, grants nonexclusive licenses royalty free to all on domestic patents. Furthermore, the Canadian and British policy is to accord exclusive licenses in exceptional circumstances whereas the AEC has not accorded exclusive licenses.

4. FOREIGN LICENSING POLICIES ON GOVERNMENT-OWNED PATENTS

A. United States

The AEC has generally accorded nonexclusive, royalty-free licenses on foreign-owned patents to U.S. citizens, corporations and their affiliates. The AEC has under study the policy to be followed in granting licenses on its foreign-owned patents to foreign nationals or foreign corporations.

B. Canada

Atomic Energy of Canada, Ltd., directly or through Canadian Patents & Development, Ltd., grants nonexclusive licenses on foreign patents owned by AECL at royalty charges at ordinary commercial rates. The Canadian contractor is accorded a royalty-free, nonexclusive license on foreign patents. The Canadian AECL may grant exclusive licenses on foreign patents under certain circumstances at the commercial rates with provision for granting royalty-free licenses to other governments under special circumstances.

C. United Kingdom

The United Kingdom grants nonexclusive licenses at royalty rates ranging from 2½ percent to 10 percent of selling price of patented article on United Kingdom-owned foreign patents. The United

Kingdom Atomic Energy Authority may grant exclusive licenses on foreign-owned patents subject to the right of the United Kingdom domestic licensees to export devices to those foreign countries. The United Kingdom contractor is accorded a royalty-free, nonexclusive license on foreign patents.

General

It is to be noted that both Canada and the United Kingdom charge royalties on nonexclusive licenses issued on foreign-owned patents to others than the contractor, and may grant exclusive licenses. Where the United Kingdom does grant an exclusive license on a foreign patent, it protects its domestic licensees by providing that the domestic licensees may export to the foreign countries the devices covered by such foreign patent.

The AEC, on the other hand, accords nonexclusive, royalty-free licenses to U.S. citizens and corporations and their affiliates in its foreign owned patents but has not granted exclusive licenses nor does it charge royalties. It is to be noted that in Canada and the United Kingdom, the contractor is accorded royalty-free licenses in both domestic and foreign patents.

We trust this information may be of assistance in the study you are undertaking.

Sincerely yours,

ROLAND A. ANDERSON,
Chief, Patent Branch.

PATENT LICENSING PROBLEMS IN INTERNATIONAL ATOMIC ENERGY DEVELOPMENT

(By Bennett Boskey)

(Address for delivery before Atomic Industrial Forum, Inc., Symposium on International Problems of the Atomic Industry, April 25, 1957, Plaza Hotel, New York City)

My particular allotment in today's symposium is the topic of patents and invention rights—a topic which has unmistakable importance to the vigorous development of an international atomic energy industry.

Yet here at the outset a simple word of caution is in order. Patent questions are only a small part of the atomic story. There is a tendency to magnify the patent questions out of proportion to their true significance; this tendency should be resisted. They must be kept in proper perspective and viewed in their relationship to all the other international aspects of the atom.

There is also a tendency to think of patents as being something singularly obscure and esoteric. Oftentimes this dismal reputation may well be justified. But the fundamental questions of policy and practice relating to patents and invention matters really can be stated—and stated adequately—in language that is essentially nontechnical. In fact, the ideas are likely to gain in clarity and in sharpness from the special effort required to portray them in everyday language.

My intention this morning is to identify some of the principal international patent problems in the international atomic industry now

beginning to unfold. These problems will be stated primarily from the standpoint of people in the United States. It is useful, however, to remember that the problems may look a little different from the standpoint of people in foreign countries.

During the relatively short period since the Atoms for Peace Conference was held at Geneva in 1955, a notable quickening of pace has occurred in international atomic energy development. This quickening of pace is reflected in the wide range of the topics being covered in our symposium today.

The international side of the atom confronts us with the intricacies of international politics and diplomacy, of national sovereignty and international organization, indeed of the prospects for war or peace and for disaster or survival. It requires us to take due account of the whole structure of international trade practices and of foreign aid policies—those not only of the United States but of other nations as well. It requires us also to canvass realistically the economic and psyche factors bearing on development of the vast underdeveloped regions of the world, regions whose peoples have been "stirred by the hope" that atomic energy will bring a new day in combating the persistent and oppressive problems of poverty, famine, and disease. And all the while we must be alert to the difficulties of striking a proper balance between immediate security demands for secrecy, on the one hand, and the ultimate goals of scientific progress, on the other, so that prudent and workable guidelines can be drawn to govern the exchange and release of information across national boundaries.

Where and how do patent and invention matters fit into this highly complex international setting?

By now we have grown accustomed to the idea that, in the field of atomic energy, scientific progress and technological advance show little respect for national boundaries. We realize that the great inventive contributions to future atomic energy development will come from men and women of many nations. In this, as you know, the atom is by no means unique. It is following the course marked out so plainly by advances in many other fields preceding the discovery of fission. For example, perhaps the most renowned American patent litigation during the 19th century were the cases in which the Supreme Court sustained, as being valid and infringed, the U.S. patents which had been issued to Samuel F. B. Morse for the electromagnetic telegraph and to Alexander Graham Bell for the telephone; and if you will look at the scientific history recounted in those landmark decisions,[67] you will see how thoroughly competitive were the developments in the United States and in foreign countries.

A patent is effective only within the jurisdiction of the country which issues it. For practical purposes its force gives out at the boundary, except to the extent it may serve as the basis for acquiring foreign rights under a patent separately issued by a foreign government.

As you all know, the patent laws are by no means uniform from one country to another. They differ considerably as to the subject matter for which patents may be issued; as to the standards applied in determining whether the patent should issue; as to the exact nature of the rights conferred by the patent; as to the remedies available to

[67] *O'Reilly* v. *Morse*, 15 How. 62 (1853); *Telephone Cases*, 126 U.S. 1 (1888).

the patentee; as to whether the patent must be used (or, as it is called, "worked") within the country in order for the patentee to be able to hold on to his right to exclude; as to the nature of the fees which must be paid to the government, both initially and later on; and indeed on many other matters of both substance and procedure. What these numerous national patent systems have in common, however, is a basic purpose to encourage and stimulate invention by assuring to the patentee an opportunity for pecuniary reward and by assuring to the public a full disclosure of the invention.

The need for international arrangements with respect to patent matters, which would enable the owners of inventions to obtain suitable protection on a nondiscriminatory basis in foreign countries, received a great deal of attention in the nineteenth century. The result was a convention, formulated at an international conference held at Paris in 1883, for the protection of industrial property. This convention, adhered to by many countries, has been modified by successive conferences of revision held at Rome, at Madrid, at Brussels, at Washington and at The Hague.[68] There is a Supreme Court patent opinion shortly before the First World War, in which the Court settled an interesting point of legal interpretation by analyzing the discussions at the Brussels Conference of Revision.[69] Ten or fifteen years from now, we might expect to find cases which, in like fashion, would revolve around the history of international agreements presently being worked out in relation to the atom.

A significant result of the convention is to give the inventor a reasonable opportunity—12 months after he files a patent application in his own country—to file patent applications in other convention countries without being prejudiced by the intervening lapse of time. Moreover, in addition to the convention, there are other international agreements of long standing which affect patent rights. Among them are the industrial property provisions in various peace treaties, and the nondiscrimination provisions in our traditional treaties of friendship, commerce, and navigation.

I mention these matters because it is necessary to understand that there already exists a most substantial body of principle and precedent applicable to international patent questions. The international atom may be a relatively new arrival on the scene, but the international patent arrangements certainly are not.

Many factors might persuade an American patent owner to avail himself of these international patent arrangements and to seek patent protection in foreign countries. When I mention some of the principal reasons, you will see how easily they could apply to American firms engaging in international atomic energy business, just as they apply in other fields of industry. You will also see how, in a reciprocal sense, they could likewise be applicable to the foreign national who is considering establishing patent rights in the United States.

One reason obviously may be that foreign patent rights will give the American patent owner the opportunity to make money out of an American export business in the article which the patent would protect. An atomic energy illustration would be exporting from the United States some novel reactor material having wide potentialities.

Another reason: with foreign patent protection the patent owner may improve his opportunity to establish abroad a subsidiary or an

[68] See Ladas, The International Protection of Industrial Property (1930), pp. 74-97.
[69] *Cameron Septic Tank Co.* v. *Knoxville*, 227 U.S. 39 (1913).

affiliated company which, under appropriate licensing arrangements, can manufacture the item in the foreign country where it is set up. An atomic energy illustration would be the establishment in the United Kingdom of an affiliate for manufacturing this same novel reactor material—an affiliate which, incidentally, would thereby obtain the benefits of the tariff preferences prevailing throughout the British Commonwealth.

Another reason: the simple expectation of deriving money royalties from the licensing of a foreign manufacturer or foreign user with whom the American patentee might have no other affiliation.

Another reason may be essentially defensive in nature, namely, that the American patent owner wishes to protect himself and his competitive position in the foreign country against the possibility that someone else—whether in good faith or in bad faith—will obtain a patent there which may seriously block or impede the American's access to the foreign market.

Another reason: a desire to build up a patent position abroad which will have useful trading value, or leverage, in negotiating with foreign firms for cross-licensing arrangements covering the latter's own inventions and know-how. In some international industrial arrangements, just as in some domestic transactions, this trading value may assume great importance in working out a fair and equitable basis for the parties to do business with each other.

Another reason which I must mention—for history shows that business motivations do not always confine themselves strictly within lawful limits—is the possibility of using the patents as part of a plan for an international territorial division of markets or for some other activity that may run afoul of the U.S. antitrust laws.

And still another reason may be from considerations of prestige or promotional effort.

Thus the whole subject of foreign patenting turns upon a number of intensely practical considerations, largely of a business nature. These will include also questions relating to foreign currency convertibility and currency controls, which in some instances seriously limit the value of a foreign patent.

It is clear that foreign patenting can be very costly and time consuming, particularly if undertaken on a wholesale and undiscriminating scale. Generally, it is necessary to do it selectively, carefully weighing possible benefits against the burdens. The atomic energy field will be no exception to this.

I have stressed that the international patent system was already well established, long before we began to wrestle with problems of atomic energy. Does atomic energy, then, really give rise to special international patent problems, substantially different from those encountered in other fields? I think that plainly it does. Let me outline some of them, at the same time urging that they be considered not in isolation but in relation to the principles more generally applicable to patents and inventions in international trade and commerce.

First, the practical factors: In making practical business judgments as to the value of establishing a foreign patent position on atomic energy inventions, the present and the probable future role of the particular foreign country should be considered from the standpoint of development and utilization of atomic energy. How extensive a use of the invention could really be expected in the country, even under

optimistic assumptions? To what extent might establishment of a patent position there be helpful in the acquisition of other atomic energy business? How much of the particular country's atomic energy enterprises are likely to remain in public rather than in private hands, and what bearing would this have on the wisdom of seeking to establish a patent position there?

This is the sort of reckoning—or long-term calculation mixed with speculation—which normally should accompany the process of deciding about a foreign patenting policy in any field. But here in the case of the atom, while the same type of good judgment and sound instinct is needed, a considerably different body of information must be resorted to. What is called for is an especially alert and informed appraisal of all the relevant facts concerning atomic energy developments.

Second, legislative provisions: I already mentioned that patent systems vary considerably from one country to another. When we come to the atom, it is necessary to take into account an additional complication—namely, the possibility of special laws or decrees relating to atomic energy inventions. Here in the United States, for example, our 1954 Atomic Energy Act has gone a long way toward restoring the field of atomic energy to the normal patent system, and yet there are some exceptions to this which cannot safely be ignored. Similarly, a number of other countries have also enacted special provisions relating to atomic energy inventions.

In assessing whether it is worthwhile to apply for a foreign patent on an atomic energy invention, and what kind of rights would be obtained if the patent is granted, the impact of any such special atomic energy provisions must be considered. The same will be true in assessing whether, and how much, it is worthwhile to try to purchase a license under a foreign patent which has been issued to someone else. You should not assume, without first looking into the matter, that in any particular country the substantive or procedural law governing atomic energy inventions is exactly the same as that governing other inventions.

Third, intergovernmental agreements: Special consideration must in any event be given to intergovernmental agreements between the United States and foreign countries relating to atomic energy. You will hear more extensively about the bilateral agreements, both the research types and the power types, from the next speaker. For present purposes it suffices for me to say that, in the pattern which has developed in those power bilaterals which provide for the exchange of classified information, there are express patent provisions governing rights in those inventions resulting from the use of information which is classified at the time when communicated from one country to the other under the agreement.

The broad purpose of such provisions is laudable and worthy. In a very general sense—and without pausing to describe all the numerous refinements—the purpose is to assure, as to such inventions, that one government will not find itself or its citizens at a commercial or industrial disadvantage, or subject to some discriminatory treatment, with respect to inventions resulting from the use of classified information communicated to the other country under the bilateral agreement. We do not have the time this morning to delve into the details of the patent clauses of these bilaterals, and they are not all identical. But

in their specific language these patent clauses seem to lack the full measure of clarity which would be desirable. Careful scrutiny of their texts will raise some substantial doubts as to just what inventions are covered and exactly how the rights of private parties might be affected. Perhaps this is a place where experience will resolve some of the uncertainties I am thinking of. In this connection you will want to bear in mind, however, that the interpretation of an ambiguous provision in a bilateral agreement normally will require the concurrence of both governments, not just one, and that the views of our own AEC on such a question thus may be something less than definitive.

In any event, it seems essential that an American firm embarking on any atomic energy project abroad should give careful attention to the somewhat formidable-looking patent clauses, as well as to the other provisions, in the applicable bilateral agreement.

Fourth, Government patent positions: Atomic energy also differs from other industrial fields by reason of the heavy concentration of patent rights in the Federal Government. This results primarily from the nature of AEC's contractual arrangements where Federal funds are used for atomic energy purposes, rather than from any statutory requirements. Parallel concentration of atomic energy patent rights in governmental hands is occurring abroad, although not always for identical reasons. Inevitably these factors have repercussions on the international patent situation.

One place where you will find this reflected is in the patent clauses of the bilateral agreements to which I have just referred. It is reflected also in the separate atomic energy patent agreement between the United States, the United Kingdom, and Canada, having its origin in the wartime atomic energy partnership of the three nations and covering certain classes of patents applied for by any of the three governments through November 15, 1955.

Our Government's purpose when it holds patent rights is not to produce revenue but to further the total interests of the American people. Thus the value of patent rights to the Government is largely defensive, or for trading purposes in negotiations with other governments. Being in a position of ownership and dominion over such vast numbers of inventions which may have important uses on the civilian side of atomic energy, the Government has the choice either to file patent applications in foreign countries or to refrain from doing so. To the Government, as to private industry, the wholesale filing of foreign patent applications is both expensive and time-consuming. Accordingly, it is not surprising that our AEC has been filing foreign applications in only a small percentage of its cases. To take a look at the statistics, a recent report showed that during the past 2 years the Commission had filed about 150 foreign patent applications, of which approximately one-fifth were classified, and that during the same period American industrial concerns had filed about 100 patent applications on inventions arising under Commission contracts.[70]

The bulk of the Commissioned-owned inventions thus do not become the subject of foreign patent applications. The Commission has received a certain amount of criticism for this on the ground that

[70] Statement of William Mitchell, AEC General Counsel, before the Joint Committee on Atomic Energy, February 25, 1957.

the defensive benefits of foreign filings are thereby being substantially lost to the United States Government and to American industry doing business abroad. There may be some problem as to whether the Commission is really pursuing its foreign filing program actively enough, but I think much can be said in favor of its position. In the alternative, if we assume the Commission's foreign filings will remain at their present rather modest level, it may become desirable to consider whether further intergovernmental agreements might be needed to protect the position of American industry in foreign markets.

Another problem is that the public agencies of certain foreign governments—for example, of the United Kingdom—are thought to be contemplating a somewhat more vigorous foreign filing program than the U.S. Government's, with the object of building up a sizable portfolio of U.S. patents on their independently derived inventions in the field of atomic energy. Some fears have been expressed that, if this should occur, our Government would then not be possessed of sufficient trading material, in the form of U.S. atomic energy patent rights abroad, to work out suitable cross-licensing agreements for the benefit of American citizens who might wish to use in this country the atomic energy inventions owned here by foreign governments.

One important factor not adequately publicized is the AEC's very sensible policy in dealing with its contractors on the question of foreign patent filings. Where the Commission is not prepared to file abroad on an invention developed under an AEC contract, normally it will authorize its contractor to do so at his own expense, with the contractor taking title to the foreign patent application—subject, however, to at least a nonexclusive royalty-free license in the U.S. Government for governmental and mutual defense purposes. Many contractors are not aware of this. If AEC would announce its policy more emphatically, and perhaps even give its contractors some affirmative encouragement to move ahead on their own, then a good deal of this criticism would be avoided.

Fifth, security: Security problems related to restricted data cut across the patent aspects of the international atom, as indeed they cut across all the aspects. They superimpose, on the normal problems arising out of classified information, an additional set of special statutory and regulatory provisions which must constantly be checked in connection with the handling of atomic energy inventions across national boundaries.

Sixth, and finally, antitrust: The extent and the manner in which the U.S. antitrust laws become applicable to events which occur, at least in part, beyond the territory of the United States but which affect the foreign commerce of the United States, is a subject of great complexity. I am sure all of you know, particularly in the light of the Supreme Court's 1951 decision in the much-discussed Timken case,[71] that the subject nevertheless cannot be ignored in the conduct of foreign business by American firms. This will be true for atomic energy as it is for other industrial fields. Two committees in the antitrust section of the American Bar Association are likely to be studying some of these questions in considerable detail;[72] perhaps

[71] *Timken Roller Bearing Co.* v. *United States*, 341 U.S. 593 (1951). See also Report of the Attorney General's National Committee To Study the Antitrust Laws (1955), ch. II.

[72] Committee on Antitrust Aspects of the Atomic Energy Program; Committee on Antitrust Problems in International Trading.

such questions will also be canvassed in the extensive studies of the patent system which are now in progress under the auspices of the Senate Judiciary Committee's Subcommittee on Patents, Trademarks, and Copyrights.[73] But a good starting point in the atomic energy field is the certain fact that the 1954 Atomic Energy Act, in section 105, expressly declares that it does not relieve any person from the operation of the antitrust laws. As the new international atomic energy industry goes through its early stages, careful foresight should make it possible to avoid embarking upon practices which later on might be the source of serious difficulties under the antitrust laws.

Let me emphasize, in conclusion, that almost by necessity our discussion today has been tentative and exploratory. I have raised with you some questions I feel deserve your careful consideration over the course of time, even though perhaps not all of them may have an immediate practical impact on your activities. I have not attempted in this short discussion to provide the answers. Indeed, as probably you have realized, with respect to many of these patent problems it is still too early for definite answers to be expected.

Summary of Atomic Energy Patent Legislation for Great Britain, Canada, and Australia

(By Walter H. Zeydel, Assistant Chief, American-British Law Division Law Library, Library of Congress)

ATOMIC ENERGY PATENT PROVISIONS

GREAT BRITAIN

Statutory provisions

I. Atomic Energy Act, 1946 (9 and 10 Geo. 6, ch. 80, secs. 12, 14, in Public General Acts and Measures of 1946 (London, H.M.S.O., 1947), pp. 1109–1112):

> 12. Where an application for the grant of a patent for an invention has been made to the Comptroller General of Patents, which appears to him to relate to the production or use of atomic energy or research into matters connected therewith, he shall serve notice in writing on the Minister of Supply. The Comptroller General of Patents may, notwithstanding anything in any Act, omit or delay the doing of anything which he would otherwise be required to do in relation to the application, and give directions for prohibiting or restricting the publication of information with respect to the subject matter of the application or the communication of such information to particular persons. Any person who contravenes any such direction shall be guilty of an offense under this Act.
>
> The Minister of Supply when notified as aforesaid shall consider whether the invention in question is of importance for purposes of defence and may inspect all documents and information furnished to the Comptroller General of Patents in connection with the application and if he is satisfied that the invention is not of importance for purposes of defence, he shall give notice to

[73] See the subcommittee's report, dated Feb. 18, 1957, S. Rept. 72, 85th Cong., 1st sess.

the Comptroller General of Patents to that effect and thereupon the Comptroller General shall cease to exercise the powers stated above.

In cases where on an application for a patent a notice has been served under subsection (1) above, and six months have elapsed from date of service of that notice without service of a notice under subsection (2) of this section in relation to that application, any person who has before the date of the application, incurred expense or done work in connection with the discovery or development of the invention concerned, shall be entitled to be paid for such expense or work as the Minister of Supply may determine such sum in no case to be less than the amount reasonably incurred.

No person resident of the United Kingdom shall, except under written authority, make or cause to be made any application outside the United Kingdom for the grant of a patent for an invention relating to atomic energy or research therein. Any person making such application without authority shall be guilty of an offence under the Act. The provisions of this subsection shall not apply in cases—

(a) Where an application for a patent for the same invention has been made in the United Kingdom not less than six weeks before the application outside the United Kingdom and

(b) either no directions have been given under subsection (1) of this section in relation to the application in the United Kingdom or all such directions have been revoked.

Where the Comptroller General of Patents in exercise of powers under subsection (1) omits or delays doing anything or gives directions for prohibiting; or restricting the publication or communication of information, he may extend the time limited under the Patents and Designs Act, 1907–1946 for doing any act.

Right of person to apply for a patent in respect of an invention shall not be prejudiced by reason only that the invention has previously been communicated to the Minister of Supply under this section and a patent shall not be held to be invalid by reason only that the invention has been communicated.

The Minister of Supply has power to make, use, exercise or vend any invention under subsection (1) of section 29 of the Patents and Designs Act, 1907 (which confers rights on Government departments to make, use or exercise inventions for the services of the Crown) for such purposes relating to the production or use of atomic energy or research into matters connected therewith as the Minister thinks necessary or expedient. In this connection the Minister of Supply may authorize the use of any drawing, model, plan or other document or information in any way he thinks necessary or expedient.

14. Persons guilty of an offence under this Act shall be liable—

(a) on summary conviction to imprisonment for 3 months or a fine not exceeding £100 or both

(b) on conviction on indictment to penal servitude for 5 years or fine of £500 or both.

II. Patents Act, 1949 (12 and 13 Geo. 6, ch. 87, sec. 18 in Public General Acts and Measures of 1949 (London, H. M. S. O., 1949), pp. 1741–1743):

> 18. Where the Comptroller of Patents on advice of a competent authority is of the opinion that an application for a patent is one of a class that is relevant for defence purposes, he may give directions to prohibit or restrict the publication of information with respect to such invention.
>
> Notice of such directions shall be given to a competent authority. A competent authority shall consider whether publication would be prejudicial to the defence of the realm. This question shall be reconsidered after nine months from the date of filing and at least once a year thereafter. Competent authority may also inspect the application at any time after acceptance. Notice shall be given the Comptroller General of Patents by the competent authority when in his opinion publication of the invention would no longer be prejudicial to the defence of the realm.
>
> Where a complete specification filed in pursuance of an application for an invention in respect of which directions have been given under this section or under section 12 of the Atomic Energy Act, 1946, is accepted, then, if any use is made of the invention during the continuance in force of the directions by the Government, the provisions of sections 46 to 49 of this Act shall apply as if the patent had been granted for the invention and if it appears that the applicant has suffered hardship by the continuance in force of the directions, reasonable compensation shall be made.
>
> Where a patent is granted in pursuance of an application in respect of which directions have been given under Section 12 of the Atomic Energy Act, 1946, no renewal fees shall be payable while such directions are in force.
>
> This section contains provisions regarding applications for patent rights outside the United Kingdom which are identical to those found in Section 12(5) of the Atomic Energy Act, 1946, above.

Legal decisions

None found.

Treatise

White, T. A. B., "Patents for Inventions and the Registration of Industrial Designs," second edition (London, Stevens & Sons, 1955). This treatise on British patent law presents summaries of above statutes and offers no comment or interpretation.

CANADA

Statutory provisions

I. An act to amend the Atomic Energy Control Act (2 and 3 Eliz. II, ch. 47, sec. 10, in Statutes of Canada, 1953–54 (Ottawa, Edmond Cloutier, 1954), pages 258–259):

> 10. The Minister (Chairman of the Committee of the Privy Council on Scientific and Industrial Research) may, with the approval of the Governor in Council, license or otherwise make available or sell or otherwise dispose of discoveries, inventions and improvements in processes, apparatus or machines, and patent

rights acquired under this Act and collect royalties and fees thereon and payments therefor.

II. An act respecting inventions by public servants (2 and 3 Eliz. II, ch. 40, secs. 3–9, in Statutes of Canada, 1953–54, pp. 193–195):

Inventions made by a public servant acting within the scope of his duties or employment, or with facilities, equipment or financial aid provided by or on behalf of Her Majesty, vest in Her Majesty.

Every public servant who produces such an invention shall notify the appropriate Minister thereof and shall furnish such information and documents with respect thereto as the Minister requires. Such public servant shall not file an application for a patent in respect of the invention outside of Canada without the written consent of the appropriate Minister.

Determination of any questions which may arise regarding the vesting of the invention in Her Majesty shall be decided by the appropriate Minister within 3 months. Inventor or other person claiming an interest in the invention may with 30 days from date of determination that invention is vested appeal to the Exchequer Court. A public servant who has made an invention vested in Her Majesty shall execute all documents required by the appropriate Minister. Appropriate Minister may waive, abandon or transfer all or any rights in respect of any invention vested in Her Majesty by the Act or in respect of any invention made or to be made by a public servant. No interest in an invention coming within section 22 of the Patent Act shall be waived, abandoned or transferred under this section without the approval of the Atomic Energy Control Board.

III. Patent Act, in Revised Statutes of Canada, 1952 (Ottawa, Edmond Cloutier, 1952), page 4156:

Section 22. Any patent application for an invention that, in the opinion of the commissioners, relates to the production, application or use of atomic energy shall, before it is dealt with by an examiner appointed pursuant to Section 6, be communicated by the Commissioner to the Atomic Energy Control Board.

Statutory rules and orders

I. Patent Rules, P.C. 1954–1855 in "Statutory Orders and Regulations-Consolidation, 1955" (Ottawa, Edmond Cloutier, 1955), volume 3, page 2526:

94. A copy of any application relating to atomic energy shall be sent to the Atomic Energy Control Board by the Commissioner of Patents pursuant to Section 22 to the Patent Act (see above).

The Commissioner of Patents may require applicant for a patent relating to atomic energy to furnish the Patent office with copies within such time as he may fix by notice.

95. Where the Commissioner pursuant to section 500 of the Atomic Energy Regulations of Canada (see below) omits or delays the doing of anything that he would otherwise be required to do regarding an application, he shall take prompt steps to ascertain whether the application contains patentable subject matter and whether there is any other application in the Office which conflicts and promptly inform the Atomic Energy Control Board of his findings.

II. Atomic Energy Regulations, P.C. 1954–1643, in "Statutory Orders and Regulations-Consolidation, 1955" volume 1, pages 157–158 (Ottawa, Edmond Cloutier, 1955):

500. Where an application has been made to the Commissioner of Patents for the grant of a patent or the registration of a design which in his opinion relates to the production, application or use of atomic energy or to any prescribed substance or prescribed equipment, and the application is communicated by the Commissioner to the Board, the Commissioner if satisfied that it is expedient in the public interest so to do, may omit or delay the doing of anything that he would otherwise be required to do in relation to the application, and give directions for prohibiting or restricting the publication of information with respect to the subject matter of the application.

Advice of the Atomic Energy Control Board in relation to any application of which the Board is notified by the Commissioner of Patents shall be given within 6 months after it has been received and all proceedings shall be stayed until such advice is given.

501. Where the Commissioner of Patents on the advice of the Atomic Energy Board omits or delays doing anything that he would otherwise be required to do in relation to an application and the Commissioner informs the Atomic Energy Board that there is no other application in the Patent Office with which the first mentioned application would be involved in conflict proceedings and that the first mentioned application contains patentable subject matter, the Board may, with the approval of the Governor in Council, pay to the applicant under the first mentioned application, such compensation in respect of expense incurred or work done in connection with discovery or development of the invention concerned as may be agreed upon between the applicant and Board, or if not agreed upon as may be determined by the Exchequer Court.

502. No person shall without the written permit of the Commissioner of Patents, make an application, in a foreign country, for the grant of a patent or registration of a design relating to the production, application or use of atomic energy or to any prescribed substance or equipment.

503. Right of any person to apply for or obtain a patent in respect of an invention or registration in respect of a design shall not be prejudiced by reason only of the fact that the invention or design has previously been communicated to the Atomic Energy Board under these regulations or used by any person in consequence of such communication and a patent in respect of an invention, or the registration of a design, shall not be held to be invalid by reason only that the invention or design has been so communicated or used.

Legal Decisions

None found.

Treatise

Fox, Harold G. "Canadian Law and Practice Relating to Letters Patent for Inventions" (Toronto, Carswell Co., Ltd., 1948), two volumes. Contains summary and transcript of atomic energy patent legislation and regulations, but no comment or interpretation.

AUSTRALIA

No provision has been found directly concerned with patents relating to atomic energy. However, section 131 of the act relating to patents, No. 42, of 1952, "Commonwealth Acts, 1952" (Canberra, Government Printer, 1953), volume 1, pages 173–74, relates to patents connected with defense including, conceivably, atomic energy.

> 131. Subject to any directions of the Attorney General, the Commissioners of Patents may, if it appears to him to be necessary or expedient so to do in the interests of the defence of the Commonwealth by order in writing under his hand, prohibit or restrict the publication of information with respect to the subject matter of an application made for the grant of a patent.
>
> A person shall not except in accordance with the written consent of the Commissioner of Patents publish or communicate information in contravention of an order made under the last preceding subsection. Penalties are prescribed as follows: on summary prosecution—a fine not exceeding £250 or imprisonment for a term not exceeding 6 months or both; if prosecuted by indictment—a fine not exceeding £5000 or imprisonment for a term not exceeding 2 years, or both.

Legal decisions

None found.

International agreements—Multilateral

Agreement between the Government of the United States of America, the Government of Canada and the Government of the United Kingdom of Great Britain and Northern Ireland as to the disposition of rights in atomic energy inventions. Entered into force, September 24, 1956, "U.S. Treaties and Other International Agreements" (Washington, Government Printing Office, 1956), volume 7, pages 2526–2528.

This agreement provides for the final disposition of rights, title and interests in inventions controlled and administered by the Combined Policy Committee during the war. As a result of the provisions of this agreement, the Government employing the inventor shall own the entire rights, title and interest in any such Combined Policy Committee invention. It is declared to be desirable and to the mutual benefit to exchange certain rights, title and interests in all inventions or discoveries in the field of atomic energy which are the subject of patents by one Government in the country of the others.

It also provides for the transfer and assignment to the other Government or Governments of such rights, title and interests as the assigning and transferring Government may own in the other's country subject to retention by the assigning and transferring Government of a non-exclusive, irrevocable, paid-up license to make, use and have made such invention by the assigning and transferring Government or for purposes of mutual defense.

It further accords the right to nonexclusive, irrevocable, paid-up license to other Governments to make, use and have made such invention for purposes of mutual defense.

No discrimination shall be made against the nationals of other Governments in grant of licenses in patents owned by each Government or in which each Government acquires ownership under this agreement.

Any claims against other Governments for compensation, royalty or award with respect to any invention within the scope of this agreement shall be waived.

International agreements—Bilateral

Great Britain, Canada, and Australia have concluded bilateral agreements with the United States [74] on cooperation for civil uses of atomic energy which contain provisions regarding patents. The pertinent provisions are identical and a summary is here given:

Should the United States communicate to any of the three countries above-mentioned, classified information and should an invention be made or conceived as a result of such communication, each of the countries agrees—

1. to transfer to the United States all rights in such invention in the United States subject to a royalty-free, nonexclusive license to the other country for purposes of mutual defense.
2. to grant to the United States a royalty-free, nonexclusive, irrevocable license for its governmental purposes in the other country or third countries.
3. that, although it has the right to deal with any invention in its own country or third countries as it may desire, in no event shall the other country discriminate against United States citizens in respect to granting any license.

Patents and Atomic Research

GERMANY

(By Dr. Fred Karpf, Senior Legal Analyst, European Law Division, Law Library, Library of Congress)

I. GENERAL SURVEY

Since the day when the Federal Republic of Germany regained its full sovereignty,[75] this country was slated to play an ever-increasing role in the research of atomic energy and its application, particularly, for peaceful use.

By Decree of the Federal Cabinet of October 6, 1955, a Federal Ministry concerning Questions of Atomic Energy was created,[76] which in October 1957 was also charged with the utilization of water resources, an enlargement in scope reflected also in the adoption of the new designation, Federal Ministry for Atomic Energy and Utilization of Water Resources.[77] Two departments of this Ministry concern themselves mainly with questions relating to atomic energy. The one with law and economy, administration and international cooperation, the other with research, technology and protection against radiation.

This Ministry is assisted by the Atomic Energy Commission (Deutsche Atomkommission), an advisory body created by decision of the Federal Government of December 21, 1955. This Commission,

[74] "U.S. Treaties and other International Agreements" (Washington, Government Printing Office, 1955, 1956), vol. 6 (1955), No. 3304; ibid., No. 3321, vol. 8, 3830.

[75] On the basis of the provisions of the Paris Treaty which, together with the Convention on Relations between the Three Powers and the Federal Republic of Germany, became effective on May 6, 1955 (Bundesgesetzblatt, abbreviated BGBl., 1955, pt. II, p. 630).

[76] "Deutsches Atomenergierecht" compiled by G. Erler and H. Kruse, 1955-, C 20, p. 1, looseleaf.

[77] "Rapport sur la situation des industries nucl[illegible] airesdans la communauté" submitted by the Commission of the European Atomic Energy Community (Euratom), Brussels, June 30, 1958, p. 18 et seq.

placed under the direction of the ministry, consists of outstanding representatives from the fields of science, industry, finance, and public life.

According to the concept of the Federal Government [78] the utilization of atomic energy for peaceful uses within the Federal Republic shall be left to private industry, while the main task of the state shall be the promotion of research and the providing of adequate scientific personnel. The state intends to participate directly only to the extent necessary for the protection of personnel employed in atomic installations, of the population, and of public security. Financial subventions to industrial enterprises in the field of atomic energy shall be granted only in the early stages of their development.

Based on these concepts the Federal Government submitted, in December 1956, a draft of a Law on the Production and Utilization of Atomic Energy and Protection against its Dangers (Atomic Energy Law) to the German Diet [79] (Bundestag) after the bill was returned by the Federal Council (Bundesrat) with several suggested changes.

The purpose of the law as defined in section 1 is threefold. It is to make possible and to foster the free and unrestricted development of research and peaceful uses of atomic energy; it is to protect life, health and property from the dangers of nuclear energy and prevent the endangering of the domestic and external security of the Federal Republic by the use of nuclear energy; and finally it is to assure the fulfillment of international obligations assumed by the Federal Republic in the field of atomic energy.

After this bill was rejected by the Parliament, the Government submitted the draft for another law,[80] temporary in nature and of lesser scope, which was to cope with the most urgent questions arising out of the construction and the use of nuclear reactors. But this bill too failed of passage, along with several offered amendments. The main reasons for the delay in enacting a Federal law regulating this highly important field are the different views held by the main political parties on several points; one particularly responsible for this continued delay, and dealt with widely in Government and party circles as well as in legal literature, touches upon the question whether a Federal atomic energy law could be enacted without making, at the same time, some changes in the basic law (constitution). Recently the view seems to have gained ground that a law could be enacted without any constitutional amendments. If this view were generally accepted it might result in a speedier enactment of the law.

In the meantime, however, the solution of several legal questions became urgent, which were connected with the construction and use of nuclear reactors in the several states. In the absence of Federal legislation, several German states felt compelled to enact special laws designed primarily to protect the population from specific dangers connected with atomic energy, particularly against dangers from radiation and the harm resulting therefrom. The temporary character of these laws is stressed in most of these enactments which are merely designed to bridge the gap until Federal legislation in this field gets underway.

[78] Rapport, pp. 18-19.
[79] Deutscher Bundestag, 2. Wahlperiode 1953, Drucksache 3026; Deutscher Bundesrat, Drucksache Nr. 322 of 1956.
[80] Bundesratdrucksache Nr. 357 of 1957, received by the Federal Council on July 26, 1957.

The following laws are presently in force: Bavarian Law of July 13, 1957, To Regulate Temporarily the Construction and Operation of Nuclear Reactors and the Application of Radioactive Isotopes (Bayerisches Gesetz und Verordnungsblatt, 1957, p. 147); First Bavarian Decree on Atomic Energy of August 29, 1957, for the Protection of the General Public from Radioactive Dangers (Bayerisches Gesetz und Verordnungsblatt, 1957, p. 183); Hesse Law of October 1, 1957, To Regulate Temporarily the Construction and Operation of Nuclear Reactors for Research Purposes and the Dangers from Radiation (Gesetz und Verordnungsblatt für das Land Hessen, 1957, p. 141); Hamburg Law of October 10, 1957, To Regulate Temporarily the Application of Nuclear Energy (Hamburgisches Gesetz und Verordnungsblatt, pt. I, p. 465); Law enacted in North Rhine-Westphalia of January 21, 1958, To Regulate Temporarily the Application of Nuclear Energy (Gesetz und Verordnungsblatt für das Land Nordrhein-Westfalen, 1958, p. 39); Baden-Württembergian Law of May 12, 1958, To Regulate Temporarily the Application of Nuclear Energy (Gesetzblatt für Baden-Württemberg, 1958, p. 129); Schleswig-Holstein Law of June 30, 1958, To Regulate Temporarily the Application of Nuclear Energy (Gesetz und Verordnungsblatt für Schleswig-Holstein, 1958, p. 225); Schleswig-Holstein Decree for the Protection from Radiation of July 13, 1958 (Gesetz und Verordnungsblatt fur Schleswig-Holstein, 1958. p. 229); Berlin Law of June 26, 1958, To Regulate the Scientific and Economic Application of Nuclear Energy (Atomic Energy Law) (Gesetz und Verordnungsblatt für Berlin 1958, p. 563).

A search of these laws did not disclose any provisions dealing with patents.

Since at present no special Federal law has yet been enacted to regulate the complex field of atomic energy, the only law specifically dealing with the subject matter is the one, never expressly repealed and therefore still in force,[81] which was issued by the Allied High Commission during the occupation for the purpose of preventing any remilitarization and rearmament of defeated Germany. This law, in force within the Federal Republic [82] is Law No. 22 [83] of the Allied High Commission for Germany on the Control of Materials, Facilities, and Equipment Relating to Atomic Energy dated March 2, 1950, as amended by Law No. 53 of April 26, 1951,[84] Regulation No. 1 [85] under Law No. 22 (as amended by Law No. 53 of April 26, 1951, and Law No. 68 of December 14, 1951.[86] This law, in its article 1, prohibits—

(*a*) the production of deuterium gas and metallic beryllium, thorium and uranium;

(*b*) the construction or erection of nuclear reactors, chain reacting piles or facilities capable of separating isotopes or uranium

[81] Franz Schlegelberger, *Das Recht der Gegenwart* (3d ed., Berlin, 1957) p. 38. All other laws were either repealed by the Allied High Commission Law No. A-37, entitled "Depriving of Effect and Repealing Certain Occupation Enactments" (*Official Gazette of the Allied High Commission for Germany* 1955, No. 126, p. 3267 *et seq*) or became inoperative with the end of the occupation due to the provisions of the Paris Treaties, which together with the Convention on Relations between the Three Powers and the Federal Republic of Germany became effective on May 6, 1955 (*BGBl.* 1955, Part II, pp. 306 and 630).

[82] Now subject to the sovereign powers of the Federal Republic and the Lander which, within the limitations set by the Constitution, may amend or repeal this law. See supra "Länderlegislation."

[83] Official Gazette of the Allied High Commission for Germany 1950, No. 12, p. 122.

[84] Ibid., 1951, No. 54, p. 882.

[85] Ibid., p. 883.

[86] Ibid., No. 71, p. 1361; J. G. Polach wrote an article dealing with the complex legal situation in the field of atomic energy legislation during and after the occupation of Western Germany in the American Journal of Comparative Law, vol. 6, No. 1 (Winter 1956), p. 79 et seq.

with a yield potential in excess of 1 milligram of U–255 per 24 hours;

(*c*) the manufacture or construction of electro-nuclear machines capable of imparting energies in excess of certain capacities.

But the Military Security Board [87] may, under article 1, subsection 2, and article 6, license such activities and grant exemptions. Article 2 enumerates a long list of prohibited articles which no person may produce, manufacture, mine, process, construct, erect, purchase, procure, receive, possess, use, store, sell, dispose of, import or export. This list includes a great number of raw materials, products, machinery, etc., which may be used in connection with the development of atomic energy. Also in this case exemptions and licenses could be granted.

This law, however, does not contain any provisions pertaining to patents. For the control of patent applications in certain fields of research and manufacture a special law was enacted which was, by its scope, also to apply to inventions in the field of nuclear energy. This was the Allied High Commission Law No. 17 of December 16, 1949.[88] Under this law the President of the German Patent Office had to inform the Military Security Board of all patent applications examined, by the office, as to form, in any field primarily of a military nature or in fields of prohibited or limited industries. This duty to report extended also to patents granted.

If the publication of any patent application or any summary or abstract thereof would, in the opinion of the Military Security Board, be a serious threat to security, the President of the German Patent Office, either on his own motion or by direction of the Board, was to withhold any publication of such application. In this case the rights of the applicant in any invention covered thereby were to be protected in accordance with the applicable provisions of German law.

This law was, however, repealed, upon termination of the occupation, by the Allied High Commission Law No. A-37 of May 5, 1955, which deprived of effect and repealed certain occupation enactments.[89]

Inventions in the field of atomic energy are therefore at present, within the Federal Republic, not subject to special legislation as compared with inventions in other fields.[90]

II. FEDERAL LEGISLATION ON INVENTIONS APPLICABLE IN THE FIELD OF ATOMIC ENERGY

With specific reference to the application of atomic energy to peaceful and military uses the following provisions found in other laws may be applicable.

Patent Law of May 5, 1936, in the version of the Fifth Law To Amend the Provisions in the Field of Industrial Property of July 18, 1953 [91]

According to this law a patent does not become effective whenever the Federal Government decrees that the invention shall be used in

[87] After the establishment of the Federal Republic the Federal Ministry for Economy took over the jurisdiction of the Military Security Board as to control and licensing functions which after January 1, 1957 were transferred to the Ministry for Atomic Energy. Circular in Bundesanzeiger 1957, No. 8, p. 20. At the same time most of the licensing procedures were dispensed with.

[88] Official Gazette of the Allied High Commission for Germany, 1949, p. 74, repealed by art. 3 of the Allied High Commission Law No. A–37 of May 5, 1955.

[89] Official Gazette of the Allied High Commission for Germany, 1955, No. 126, p. 3627 et seq.

[90] This statement is confirmed by a note in "Deutsches Atomrecht" compiled by Erler and Kruse, 1955–, G10, p. 1, entitled "The Present Legal Situation in the Field of Patents Relating to Atomic Energy."

[91] BGBI, 1953, pt. I, p. 615.

the interest of the public welfare; restrictions on the use may also be placed in the interest of the security of the Federation. In these cases the owner of the patent may claim adequate compensation from the Federation (sec. 8).

Under section 15 a compulsory license may be granted, under payment of adequate compensation, when this is in the public interest and a period of at least 3 years has elapsed since the publication of the granting of the patent.

In the interest of the security of the Federation, the Federation may be granted a secret patent. In this case, upon motion, any publication as well as the entry in the patent register shall be omitted (sec. 30a).

The translation of the pertinent provisions follows:

SECTION 1

(1) Patents shall be granted for new inventions that permit commercial utilization.

(2) The following shall be excepted:

1. Inventions the utilization of which would be contrary to law and good morals;

2. Inventions of foods, items of consumption chiefly for pleasure [e.g., coffee, tea, tobacco, alcoholic beverages; German term: Genussmittel], drugs as well as substances that are produced chemically, insofar as the inventions do not pertain to a certain process for the production of the objects.

SECTION 8

(1) The patent shall not become effective if the Federal Government orders that the patent shall be used in the interest of the public welfare. The effectiveness shall also not extend to a use of the invention that is ordered in the interest of the security of the Federation by the Higher Federal agency having jurisdiction or, upon request of this agency, by a lower agency subject to its supervision.

(2) The Federal Administrative Court [Bundesverwaltungsgericht] shall have jurisdiction over an appeal from an order under Subsection 1 if it has emanated from the Federal Government or the highest Federal agency having jurisdiction.

(3) In the cases coming under Subsection 1 the patent owner shall have a right to adequate compensation by the Federation. In case of disagreement as to the amount, recourse may be had to the regular courts. An order of the Federal Government under Subsection 1, Sentence 1 must be communicated to the person entered on the rolls (Sec. 24) as patent owner before use is made of the patent. If the Supreme Federal Agency issuing an order or instructions under Subsection 1, Sentence 2 receives information that a claim to compensation under Sentence 1 has arisen, it must inform the person entered as the patent owner concerning such claim.

SECTION 15

(1) Whenever the owner of a patent refuses to give permission for the use of the patent to someone else who offers to pay reasonable compensation and to put up security therefor, permission to use it shall be granted to the latter (compulsory license) if the permission is required in the public interest and if at least 3 years have elapsed since the issuance of the patent has been made public. The license may be granted with limitations and subject to conditions.

(2) Insofar as this does not conflict with a treaty, the patent shall be revoked if the invention is produced exclusively or mainly outside of Germany. The revocation may be requested only after the lapse of 2 years from the time the granting of a compulsory license became final and only if the public interest can no longer be served adequately in the future through the granting of compulsory licenses. These limitations, however, do not apply in the case of citizens of a foreign state that does not grant reciprocity in that respect. The transfer of the patent to someone else shall be ineffective to the extent that its only purpose is to evade revocation.

SECTION 30

(1) If the application conforms to the prescribed requirements (Sec. 26) and if the Patent Office considers the issuance of a patent to be within the realm of possibility, it decides upon the publication of the application. Upon the publication the legal effects of a patent (Secs. 6, 7, and 8) shall attach to the subject matter of the application in favor of the applicant for the patent.

(2) The application is made public by a single publication in the Patent Gazette [Patentblatt] of the name of the applicant for the patent and the essential contents of his application. Connected therewith is the notice that the subject matter of the application shall be protected temporarily against unauthorized use.

(3) At the same time the application and all the supplementary documents must be displayed at the Patent Office for anyone's inspection. The Federal Minister of Justice may order that the application be displayed also outside the seat of the Patent Office.

(4) Upon the request of the person seeking the patent the publication may be postponed for a maximum period of 6 months starting from the day when the decision concerning publication was rendered. A postponement for a period not exceeding 3 months cannot be denied.

SECTION 30a

(1) If the Federation requests the granting of a patent that in view of the security of the Federation must be kept secret, no publication and entry in the patent rolls shall take place upon motion to this effect.

* * * * *

SECTION 41

(1) During the proceedings pertaining to the issuance of a compulsory license the applicant, upon motion, may be granted the use of the patent by a temporary order if he shows to the satisfaction of the court that the prerequisites of Section 15, Subsection 1 exist and that the immediate granting of the authorization is urgently called for in the public interest.

* * * * *

Criminal Code in the version of the Proclamation of August 25, 1953 [92]

THIRD CHAPTER. TREASON

SECTION 99. [STATE SECRET; ITS BETRAYAL; DEFINITIONS]

(1) Facts, objects or knowledge, in particular writings, drawings, models or formulas, or information relating thereto, whose secrecy from a foreign government is required for the welfare of the Federal Republic of Germany or of one of its Länder, shall be considered State secrets within the meaning of this chapter.

(2) Whoever permits a State secret to reach an unauthorized person or makes it public and thereby endangers the welfare of the Federal Republic of Germany or of one of its Länder, shall be deemed to commit treason within the meaning of this Chapter.

Notice [93] *of the President of the German Patent Office of August 14, 1956, concerning the proceedings before the patent office with regard to the registration of inventions which may amount to state secrets*

In this notice special attention is drawn to section 99 of the Criminal Code defining state secrets. It is stated that since these provisions must be observed in proceedings before the patent office, no patent application may be published which is based on a discovery which should be kept secret. Though the provisions of section 30, subsection 1, of the patent law call for the publication of a patent application, whenever the requirements set forth for the application of patents are met, and the granting of the patent does not seem to be outside the realm of possibility, the provisions of section 99 et seq. of the Criminal Code nevertheless protect the elementary right of the State for the preservation of its very existence. Whenever, therefore, there is a question of doubt whether the application contains a state secret, the Federal Ministry for Defense, as the highest federal agency in this field, is to be consulted.

If an application contains a state secret, only a secret patent can be granted. Under section 30a of the patent law only the federation may retain such patents. The applicant, however, has the possibility to transfer his application, which has to be kept secret, to the Federal Republic. Whenever an invention is to be kept secret, the Federal Ministry of Defense reexamines ex officio each year the question whether the necessity for secrecy continues. If the Ministry decides to release [a patent] the applicant is to be notified immediately. If he had transferred his application to the Government which thereupon has obtained a secret patent, he may request the conversion of the secret patent into a regular patent in his name.

[92] Published in BGBl. 1953, pt. I, p. 1053.
[93] "Blatt für Patent-, Muster und Zeichenwesen" 1956, p. 242.

Law Concerning Inventions of Employees of July 25, 1957 [94]

This law, applicable to employees in private employment as well as to those in the service of the Federal Government, States, and other public agencies or corporations, regulates the field of employee inventions.

The inventions within the meaning of this law may be restricted or free inventions (sec. 4).

Restricted inventions (service inventions) are inventions made during the employer-employee relationship resulting from the duties assigned to the employee in the enterprise or the public administration, or are based, to a considerable extent, upon the experience or duties in the enterprise or public administration. The employee who has made a service invention is required to inform the employer thereof immediately in writing (sec. 5). The employer may claim a service invention in its entirety or to a limited extent. The claim takes place by written notification to the employee within 4 months from the receipt of the notification mentioned in section 5 (sec. 6). Upon the receipt of the employer's notification of an unlimited claim all rights resulting from the service invention are transferred to the employer. Upon receipt of a limited claim the employer only acquires a nonexclusive right to the use of the service invention (sec. 7). In each case the employee is entitled to a reasonable compensation (secs. 8 and 9).

A service invention becomes free whenever the employer releases it in writing, when the employer claims it to a limited extent, or if the employer fails to assert his rights within 4 months from the receipt of the notification mentioned in section 5 or within 2 months from the time the employee has requested it under section 7 (sec. 8).

All other inventions are free inventions which, however, are subject to the restrictions contained in sections 18 and 19. Under these provisions the employee who during the contract of employment has made a free invention is, as a rule, under the duty to inform the employer thereof in writing without delay. He must give such information as to give the employer the opportunity to judge whether this is a free invention. If, within 3 months from receipt of the notification, the employer does not, in writing, contest the fact that this is a free invention, he no longer may claim the invention as a service invention (sec. 18).

Prior to the utilization of a free invention during the period of employment the employee is under the duty to offer to the employer at least a nonexclusive right to the invention under reasonable conditions, whenever the invention at the time of the offer comes within the existing or projected scope of the employer's enterprise. This offer may be made together with the notification required under section 18. The right of priority expires if the employer does not accept the offer within 3 months. If the employer, within the period of 3 months, expresses his willingness to acquire the offered right but at the same time contests the adequacy of the conditions, the court shall, upon the motion of the employer or employee, fix the conditions (sec. 19).

Since this law applies not only to inventions and technical improvements made by employees in private employment but, with certain modifications, also to those made by civil servants, soldiers, and em-

[94] Published in BGBl, 1957, pt. I, p. 756.

ployees in the public service or employees of public corporations and institutions, it may well be of significance in the field of atomic energy.

Treaty establishing the European Atomic Energy Community of March 25, 1957 [96]

The Federal Republic, as a signatory to various international agreements,[97] thereby assumed certain obligations to comply with certain provisions which affect the internal legal sphere. The Treaty establishing the European Atomic Energy Commission (Euratom) [98] in particular contains a number of provisions dealing with patents:

ARTICLE 12

Member States, persons or enterprises shall, by means of a demand addressed to the Commission, be entitled to benefit by non-exclusive licences of patents, provisionally protected claims, utility models or patent applications, which are the property of the Community, in so far as they are in a position effectively to exploit the inventions to which they relate.

The Commission shall, on the same conditions, grant sub-licences of patents, provisionally protected claims, utility models or patent applications, where the Community holds contractual licences conferring this right.

The Commission shall grant these licences or sub-licences on conditions to be settled by agreement with the licensee and shall make available all information necessary for exploiting them. These conditions shall cover, in particular, the question of suitable compensation and, where appropriate, the right of the licensee to grant sub-licences to third parties and the obligation to treat the information imparted as trade secrets.

If agreement on the conditions provided for in the third paragraph cannot be reached the licensee may, with a view to the settlement of suitable conditions, refer the matter to the Court of Justice.

ARTICLE 13

The Commission shall communicate to Member States, persons or enterprises any information acquired by the Community which is not covered by the provisions of Article 12, irrespective of whether such information results from the implementation of the Community's research programme or is communicated to the Commission with the right to make free use of it.

The Commission may, however, make the communication of this information conditional on its being treated as confidential and not transmitted to third parties.

The Commission may communicate information acquired subject to restrictions upon its use and dissemination—such as "classified" information—if it ensures observance of these restrictions.

[96] BGBl. 1957, pt. II, p. 1014.

[97] Germany, among others, is a member of the Organization for European Economic Cooperation (OEEC), the North Atlantic Treaty Organization (NATO), the European Coal and Steel Community and the European Atomic Energy Community (Euratom).

[98] The English translation was taken from Treaty Establishing the European Atomic Energy Community (Euratom) and connected documents [Brussels, Secretariat of the Interim Committee for the Common Market and EURATOM, 1957].

Section II. Other Information

(a) *Dissemination by amicable arrangement*

ARTICLE 14

The Commission shall, by friendly means, endeavour to obtain or to cause to be obtained, the communication of information useful to the Community in the pursuit of its objects and the granting of licenses to exploit patents, provisionally protected claims, utility models or patent applications relating to such information.

ARTICLE 15

The Commission shall arrange a procedure by which Member States, persons or enterprises may use it as an intermediary to exchange provisional or final results of their research in so far as these are not results acquired by the Community under research contracts granted by the Commission.

The procedure shall guarantee the confidential nature of the exchange. The results communicated may, however, be transmitted by the Commission to the Joint Nuclear Research Centre for purposes of documentation, provided that such transmission shall not confer any right of use to which the originator of the communication has not consented.

(b) *Ex officio communication to the Commission*

ARTICLE 16

1. As soon as an application for a patent or a utility model relating to a specifically nuclear subject is filed with a Member State, the latter shall ask the applicant to consent to the contents of the application being immediately communicated to the Commission.

If the applicant so consents, this communication shall be made within a period of three months after the date of the filing of the application. If the applicant does not so consent, the Member State shall, within the same period, notify the Commission of the existence of the application.

The Commission may require the Member State to communicate to it the contents of an application of whose existence it has been notified.

The Commission shall make this demand within a period of two months after the date of the notification. Any extension of this period shall cause the period mentioned in the sixth subparagraph to be similarly extended.

The Member State shall, on receiving the Commission's demand again ask the applicant to consent to the communication of the contents of his application. If the applicant so consents, the communication shall be made forthwith.

If the applicant does not so consent, the Member State shall nevertheless make the communication to the Commission after a period of eighteen months from the date of the filing of the application.

2. Member States shall notify the Commission, within a period of eighteen months from the date of its filing, of the existence of any unpublished application for a patent or utility model which appears prima facie to them to deal with a subject that, without being of a specifically nuclear nature, is directly connected with and essential to the development of nuclear energy with the Community.

The contents of the application shall, at the demand of the Commission, be communicated to it within a period of two months.

3. Member States shall, in order that publication may take place as soon as possible, reduce to a minimum the time taken by the procedure in respect of applications for patents or utility models relating to the subjects referred to in paragraphs 1 and 2 and concerning which the Commission has made a demand.

4. The Commission shall consider the above-mentioned communications as confidential. They must not serve any other purpose than that of documentation. The Commission may, however, make use of the inventions communicated to it either with the consent of the applicant or in accordance with Articles 17 to 23 inclusive.

5. The provisions of this Article shall not apply if an agreement concluded with a third country or with an international organization precludes communication.

(c) *Licences granted by means of arbitration or ex officio*

ARTICLE 17

1. Failing an amicable arrangement, nonexclusive licences may be granted, either by means of arbitration or ex officio, in accordance with the provisions laid down in Articles 18 to 23 inclusive:

(*a*) to the Community or to Joint Enterprises entitled to them under the terms of Article 48, in respect of patents, provisionally protected claims or utility models relating to inventions directly connected with nuclear research, in so far as the granting of such licenses is necessary to the pursuit of their own research or indispensable for the operating of their facilities.

Such licenses shall, at the request of the Commission, include the right to authorise third parties to use the invention in so far as they are carrying out work or orders for the Community or for Joint Enterprises; or

(*b*) to persons or enterprises having made an application to the Commission therefor, in respect of patents, provisionally protected claims or utility models relating to inventions directly connected with an essential to the development of nuclear energy within the Community, provided that all the following conditions are fulfilled, namely:

(i) that a period of at least four years has elapsed since the filing of the application for a patent, save in the case of an invention relating to a specifically nuclear subject;

(ii) that the needs arising from the development of nuclear energy in the territories of a Member State where an invention is protected, as the Commission understands that development, are not met in respect of that invention;

(iii) that the owner, having been asked to satisfy these needs either personally or through his licensees, has not done so; and

(iv) that the persons or enterprises applying for licenses are in a position effectively to meet these needs by exploiting the licences.

Except at the prior demand of the Commission, Member States may not, in order to meet the aforesaid needs, take any coercive measure provided for under their municipal law, where the effect of such measure would be to limit the protection accorded to the invention.

2. A nonexclusive licence may not to granted under the conditions laid down in the preceding paragraph if the owner establishes a legitimate reason, in particular the fact that he has not had an adequate period of time at his disposal.

3. The granting of a license under the terms of paragraph 1 confers the right to full compensation, the amount of which shall be agreed between the holder of the patent, provisionally protected claim or utility model and the licensee.

4. The provisions of this Article shall not affect the provisions of the Paris Convention for the protection of industrial property.

ARTICLE 18

An Arbitration Committee shall hereby be established for the purposes stated in this Section; its members shall be appointed and its rules of procedure laid down by the Council acting on a proposal of the Court of Justice.

Decisions of the Arbitration Committee may, within a period of one month after their notification, be the subject of appeals brought by the parties before the Court of Justice to stay execution. The Court may decide only upon the regularities of form of the decision and upon the interpretation given by the Arbitration Committee to the provisions of this Treaty.

The final decisions of the Arbitration Committee shall have the force of res judicata as between the parties. They shall be enforceable under the provisions laid down in Article 164.

ARTICLE 19

Where, failing an amicable arrangement, the Commission proposes to have a licence granted in a case provided for under Article 17, it shall notify the holder of the patent, provisionally protected claim or utility model or the applicant for the patent accordingly, giving in its notification the name of the applicant for, and the scope of the said licence.

ARTICLE 20

The owner may, within a period one month after the receipt of the notification mentioned in Article 19, propose to the Commission and, where necessary, to the third party applying for the licence that a compromise be concluded for the purpose of referring the matter to the Arbitration Committee.

If the Commission or the said third party refuses to conclude a compromise, the Commission may not require the Member State or its competent agencies to grant the licence or to cause it to be granted.

If, when the matter comes before it under the compromise, the Arbitration Committee rules that the Commission's demand is in conformity with the provisions of Article 17, it shall give a reasoned decision ordering the granting of the licence to the applicant and determining the conditions to be observed and the compensation to be made, in so far as the parties have not reached agreement thereon.

ARTICLE 21

If the owner does not propose to refer the matter to the Arbitration Committee, the Commission may require the Member State concerned or its competent agencies to grant the licence or to cause it to be granted.

If, after hearing the owner, the Member State or its competent agencies consider that the conditions laid down in Article 17 have not been fulfilled, they shall notify the Commission of their refusal to grant the licence or to cause it to be granted.

If they refuse to grant the licence or to cause it to be granted or if, within a period of four months after the date of the demand, they fail to make any statement concerning the granting of the licence, the Commission may, within a period of two months, refer the matter to the Court of Justice.

The owner shall be heard in the proceedings before the Court of Justice.

If the judgment of the Court establishes that the conditions laid down Article 17 have been fulfilled, the Member State concerned or its competent agencies shall take the measures required for the execution of that judgment.

ARTICLE 22

1. If the owner of the patent, provisionally protected claim or utility model and the licensee fail to agree on the amount of compensation due, the interested parties may conclude a compromise for the purpose or referring the matter to the Arbitration Committee.

They thereby waive all right of appeal except as provided for under Article 18.

2. If the licensee refuses to conclude such compromise, the licence granted to him shall be deemed to be null and void.

If the owner refuses to conclude such compromise, the compensation provided for in this Article shall be determined by the competent national agencies.

ARTICLE 23

The decisions of the Arbitration Committee or of the competent national agencies shall be subject to revision in respect of the conditions of the licence after the expiry of a period of one year and in so far as new facts justify such revision.

Revision shall be incumbent upon the agency which gave the decision.

Section III. Provisions Concerning Security

ARTICLE 24

Information which is acquired by the Community through the implementation of its research programme and the disclosure of which might be harmful to the defence interests of one or more Member States shall be treated as classified information in accordance with the following conditions.

1. Security regulations adopted by the Council on a proposal of the Commission shall, in accordance with the provisions of this Article, determine the various security gradings applicable, and the security measures to be enforced, in respect of each grade.

2. The Commission shall provisionally apply the grading required by the security regulations to any information the disclosure of which it considers might be harmful to the defence interests of one or more Member States.

It shall immediately communicate such information to Member States which shall provisionally ensure its security in accordance with the same conditions.

Member States shall, within a period of three months, inform the Commission whether they wish to maintain the grading provisionally applied, to substitute another grading or to declassify the information.

At the end of this period, the strictest of those gradings so required shall be applied. The Commission shall notify Member States thereof.

At the request of the Commission or of a Member State, the Council, acting by means of a unanimous vote, may at any time apply a different grading or declassify the information. The Council shall, before ruling on such request by a Member State, obtain the opinion of the Commission.

3. The provisions of Articles 12 and 13 shall not apply to classified information.

Subject, however, to the observance of the security measures applicable,

(*a*) the information referred to in Articles 12 and 13 may be communicated by the Commission

(i) to a Joint Enterprise; or

(ii) to a person or enterprise other than a Joint Enterprise through the intermediary of the Member State in whose territories the said person or enterprise is operating;

(*b*) the information referred to in Article 13 may be communicated by a Member State to a person or enterprise, other than a Joint Enterprise, operating in the territories of that State, provided that the Commission is notified of such communication; and

(*c*) moreover, each Member State has the right to require the Commission to grant a license in accordance with Article 12 for the needs of such Member State or for the needs of a person or enterprise operating in its territories.

ARTICLE 25

1. A Member State communicating the existence or the contents of an application for a patent or utility model relating to a subject referred to in Article 16, paragraph 1 or 2, shall, where appropriate, state the need for defence reasons of applying to that application the security grading indicated by such State and shall mention the probable duration of such grading.

The Commission shall transmit to other Member States all communications received in implementation of the preceding sub-paragraph. The Commission and the Member States shall observe the measures necessitated under the security regulations by the grading which the originating State has required.

2. The Commission may also transmit these communications to Joint Enterprises or, through the intermediary of a Member State, to a person or enterprise other than a Joint Enterprise, operating in the territories of that State.

Inventions which are the subject of the applications referred to in paragraph 1 may be only used with the consent of the applicant or in accordance with the provisions of Articles 17 to 23 inclusive.

The communications and, where appropriate, the uses referred to in this paragraph shall be governed by the measures necessitated under the security regulations by the grading which the originating State has required.

Such communications and uses shall in all cases be subject to the consent of the originating State. The latter may not refuse its consent except for defence reasons.

3. At the request of the Commission or of a Member State the Council, acting by means of a unanimous vote, may at any time apply a different security grading or declassify the invention. The Council shall, before ruling on a request from a Member State, obtain the opinion of the Commission.

ARTICLE 26

1. Where information forming the subject of a patent, patent application, provisionally protected claim, utility model or application for a utility model is classified in accordance with the provisions of Articles 24 and 25, the States requiring a certain grading may not refuse to allow corresponding applications to be filed in the other Member States.

Each Member State shall take the necessary measures to ensure the maintenance of security for all such titles, applications and claims, in accordance with the procedure laid down by its domestic legislative provisions.

2. No applications may be filed outside Member States in respect of information classified in accordance with Article 24 save by the unanimous consent of Member States. If these States do not declare their attitude, their consent shall be presumed after the expiry of a period of six months from the date of the communication of the information by the Commission to Member States.

ARTICLE 27

Compensation for damage suffered by an applicant as a result of the imposition of the security classification for defence reasons shall be subject to the provisions of the municipal law of Member States and shall be the responsibility of the State which has requested such classification or procured an upgrading or an extension of such classification or prevented the filing of an application outside the Community.

In the event of two or more Member States having procured an upgrading or an extension of classification or having prevented the filing of an application outside the Community, such States shall be jointly and severally liable for making reparation for the resultant damage.

The Community shall not be entitled to claim any compensation under the terms of this Article.

Section IV. Special Provisions

ARTICLE 28

If any applications for patents or utility models not yet published or any patents or utility models classified for defence reasons are improperly used or come to the knowledge of an unauthorised third party as a result of their communication to the Commission, the Community shall make reparation for any damage suffered by the persons concerned.

In the event of such persons having the right to take action against third parties, the Community shall, without prejudice to its own claims against the author of the damage, be substituted for such persons to the extent that it has borne the cost of making reparation for the damage suffered. The right of the Community itself to take action, in accordance with general provisions in force, against the author of the damage shall not be affected.

ARTICLE 29

Any agreement or contract for the purpose of exchanging scientific or industrial information on nuclear matters between a Member State, person or enterprise and any third country, international organisation or national of a third country, shall, if it requires on either part the signature of a State exercising its sovereignty, be concluded by the Commission.

Nevertheless, the Commission may, on such conditions as it deems proper, authorise a Member State, a person or enterprise to conclude such agreements, subject to the application of the provisions of Articles 103 and 104.

* * * * *

Section III. Transitional Provisions

ARTICLE 221

The provisions of Articles 14 to 23 inclusive and of Articles 25 to 28 inclusive shall apply to patents, provisionally protected claims and utility models, and also to applications for patents

and utility models filed before the entry into force of this Treaty, under the following conditions:

1. In regard to the period of time mentioned in Article 17, paragraph 2, due account shall be taken, in favour of the owner, of the new situation arising after the date of the entry into force of this Treaty.

2. With regard to the communication of a non-classified invention, if either or both of the periods of three months and eighteen months provided for in Article 16 have expired at the date of the entry into force of this Treaty, a further period of six months shall begin to run as from that date.

If either or both of these periods are unexpired at that date, they shall be extended for a period of six months as from the date of their normal expiry.

3. The same provisions shall apply to the communication of a classified invention in accordance with the provisions of Article 16 and Article 25, paragraph 1, except that in such cases the new period or the extension of a current period shall be deemed to begin on the date of the entry into force of the security regulations referred to in Article 24.

III. DISCUSSION OF PROPOSED FEDERAL LEGISLATION CONCERNING ATOMIC ENERGY

While the efforts for an early passage of a new Federal Law on Atomic Energy continue, the drafts for a new law [99] have been widely discussed. In particular, the question is debated whether inventions and patents in the field of atomic energy do not require special legislation.

While the draft of the Atomic Energy Law submitted by the Federal Government does not contemplate any changes of the Patent Law presently in force and does not refer to that law a single time, the drafts of the Interparliamentary Work Group and of the Free Democratic Party [1] make recommendations to change the present law on several points. Sections 21 and 22 of the respective drafts call for granting of a compulsory license already after 1 year from the date of publication of the patent [instead of the period of 3 years under section 15 of the present Patent Law] and revocation of the patent whenever basic scientific discoveries are involved.

Section 21 of the Draft [2] of the Interparliamentary Work Group reads as follows:

> (1) Whenever the owner of a patent, the use of which by others is required for the progress of development as determined by the Federal Institute for Nuclear Energy, refuses to issue licenses for adequate compensation, permission may be granted to suitable petitioners pursuant to Section 15 of the Patent Law to utilize the invention after only one year has elapsed since the publication of the patent.

[99] See "General Survey," supra.

[1] This draft, dated February 28, 1956, Deutscher Bundestag, 2. Wahlperiode 1953, Drucksache 2142 also calls for the establishment of a Federal Institute for Nuclear Energy. This advisory body to the Federal Government and other agencies is also assigned certain functions the performance of which come at present under the jurisdiction of the Patent Office.

[2] Translated from Reimer, E. and H. v. Moltke, "Erfindungs und patentrechtliche Vorschriften im kommenden deutschen Atomenergierecht," Munich, C. Heymann, 1956, p. 11.

(2) Whenever the Directorate of the Federal Institute establishes that, considering the development of nuclear energy, the inventions constitute basic scientific discoveries, they shall not be patentable to that extent. The President of the Institute shall be authorized to request in these instances, in accordance with Section 13 of the Patent law, the cancellation of patents already granted.

Section 22 of the draft of February 28, 1956, of the Free Democratic Party[3] has the identical wording as section 21, subsection 1 just translated.

H. Fischerhof, an attorney and instructor on atomic energy of Frankfurt University, in an article discussing the future development of atomic energy in Germany,[4] maintains that, so far as the German patent law is concerned, atomic energy, at this time, does not constitute any special problem that would require legal treatment different from that accorded other patentable innovations. The requirements of the public interest and of the economy are met in particular by the possibilities of the compulsory license for fair compensation or the release in the interest of the public welfare as well as the curtailment of the effects of the maintenance of secrecy in the interest of State security (compare secs. 8, 15, 41 and 30a of the Patent Law). The proposal of the Interparliamentary Working Group to transfer, in effect, the decision regarding compulsory licenses in the field of atomic energy from the Patent Office to the proposed Federal Institute for Nuclear Energy (sec. 21 of the draft) does not seem justified; by doing so the proven value of the independence of the Patent Office as well as the legal protection of the inventor would be adversely affected. The proposed shortening of the time period of 3 years from the time the patent is granted until the possibility of the issuance of a compulsory license, as proposed at the same time, would presuppose an amendment of Art. V A, Subsection 4 of the Paris Convention for the Protection of Industrial Property of March 20, 1883, as revised.[5]

These views expressed by Fischerhof were confirmed in an opinion rendered by Prof. Eduard Reimer, the late President of the German Patent Office.[6] The author, who also advocates the independence of the Patent Office, recommends, however, several changes in the patent law:

In addition to the situation referred to in section 15, subsection 1 of the Patent Law a compulsory license should be granted also "when the use of the invention by others is necessary in the interest of the development in the field of atomic energy." The Patent Office in this case shall obtain an expert opinion on the matter from the administrative agency having jurisdiction.

Furthermore, an obligation is to be established for the inventor and the Patent Office to report any pertinent invention or application to the administrative agency having jurisdiction. This agency is to be given, upon request, the right to inspect the documentary material pertaining to the invention or application. This agency, however,

[3] Op. cit., pp. 11–12 (Druksache 2142 of the German Bundestag, 2. Wahlperiode 1953.

[4] "Atomwirtschaft und Gesetzgeber" [Atomic Energy and the Legislator] in Die Atomwirtschaft, vol. I, No. 3 (1956), p. 98.

[5] The text as revised in London on June 2, 1934, was published in the Reichsgesetzblatt (Collection of Laws), 1937, pt. II, p. 584.

[6] Reimer, E. and H. v. Moltke, "Erfindungs- und patentrecht-liche Vorschriften im kommenden deutschen Atomenergierecht," Munich, C. Heymann, 1957.

is not to be allowed to make use of the invention without the consent of the inventor and is furthermore to be required to keep all details secret.

Finally, in all cases concerning patents the subject of which is connected with the production or the use of nuclear energy, the Patent Office shall be required to obtain an expert opinion from the administrative agency having jurisdiction whether the use of the invention by others is necessary in the interest of the development in the field of atomic energy.

Another article by two patent attorneys [7] in discussing the various drafts comes to the conclusion that no changes of the present patent law are necessary in order to cope with the problems resulting from the developments to be expected in the field of atomic energy.

FRANCE

(By Edmund C. Jann, Assistant Chief, European Law Division, Law Library, Library of Congress)

France commenced its postwar atomic energy program with the establishment of the Commissariat for Atomic Energy under Ordinance No. 45–2563 of October 18, 1945.[8] This agency was given the difficult task of revitalizing atomic research, which had languished during the war years. Since the inception of the program the Government constantly increased the activities and technical staff in the nuclear field so that, today, the organizational setup of the atomic agencies, and the administrative regulations governing personnel and the hierarchy of these agencies have become very complex.[9]

The Commissariat established two 5-year plans (1952–56 and 1957–61) with the stress on developments in the following fields: Production of energy in the form of heat and electricity; propulsion by means of atomic motors; and utilization and commercialization of artificial radio-isotopes in medicine, agriculture, industry, and research.[10]

Although the scope of atomic research activities in France is intended to cover all phases of nuclear energy, the above statements show that stress is laid upon its possible industrial uses. It is surprising, therefore, that little has been done with regard to patents touching upon the nuclear field. The only official regulation found thus far is in Decree No. 45–2572 of the Ministry of National Education of October 30, 1945,[11] which, in article 9, provided as follows:

> Patents taken out as a result of the activities of the Commissariat shall be in its name. The inventors may eventually receive a national award the terms of which shall be approved by a decision of the Conseil d'Etat.[12]

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[7] Idel, H. and W. Andrejewski, "Die Atomenergie und das deutsche Patentrecht" in Die Atomwirtschaft, 1957, issue 5, p. 167 et seq.

[8] Journal officiel, 1945, p. 7065.

[9] Nouveau répertoire de droit, vol. 2, Paris, Dalloz, 1948, the article "Energie atomique"; with 1958 supplement. W. Körber, "Atomenergiegesetzgebung im Ausland" in Atompraxis, Karlsruhe, Verlag G. Braun, vol. 1–2 (1955–56), p. 443 [LC No. TK9001. A9]. An excellent survey of the administrative organization of scientific research in France, including nuclear research, may be found in Emmanuel Langavant, "L'Organisation administrative de la recherche scientifique" in L'actualité juridique, vol. 14 (1958), pp. 91 et seq. See also "France. Commissariat a l'energie atomique" [Report 1945–56], Paris [1956] [LC No. 9698.F72 A49].

[10] Communauté Européenne de l'energie atomique, EURATOM. La Commission, Rapport sur la situation des industries nucléaires dans la communauté, Bruxelles, June 30, 1958, pp. 15–16.

[11] Journal officiel, 1945, p. 7079.

[12] Council of State, or the highest administrative tribunal.

Further research has not disclosed to what extent this provision was applied, or whether any patents were actually granted pursuant to it. Several standard treatises[13] consulted do not mention atomic energy inventions or patent procedures applicable to them.

In a report of activities of the Commissariat for Atomic Energy[14] there is mention of a bill on the exploitation of resources useful for atomic research. This draft is said to have also contained provisions on inventions and patents in this field, but the bill had to be abandoned because, as the report says, it was too broad in scope.

No other references to patents in the atomic energy field were found.

As it was not possible to establish any provisions on security safeguards specifically applicable to inventions in the field of atomic energy, reference should be made to the general security provisions which relate to inventions of interest to national defense. These regulations were first enacted by the Decree of October 30, 1935.[15] It provides that the state may expropriate by decree any patented or nonpatented invention of interest to national defense, under payment of a just indemnity, in order to exploit it and keep it secret. For this purpose the Ministers of War, the Navy, and Air are authorized to inspect all patent applications in the National Office of Industrial Property. Such expropriation action may, in peacetime, be undertaken within 3 years after issuance of the patent and, with regard to patents already issued, within 3 years after the promulgation of this decree (art. 2). If the state decides to proceed with the expropriation, the Minister of Commerce makes this fact known to the inventor or the one entitled to the patent, and their rights in the invention thenceforth are suspended (art. 3).

The decree of expropriation is rendered upon the decision of a commission headed by a judge of the Court of Cassation (the highest court in France), which is composed of a member of the Technical Committee of Industrial Property and a member of the Paris Chamber of Commerce, to whom there are assigned a representative of the department specifically interested in the invention and a representative of the inventor. The last-named representatives merely act in an advisory capacity. The decree of expropriation shall immediately entail the partial or total abolition of the right to exploit the invention (art. 4).

If no amicable solution can be reached as to the indemnity, the amount thereof shall be fixed by the civil tribunal in whose district the party asserting rights has his domicile and, if he is not domiciled in France, by the Civil Tribunal of the Seine. The payment may, upon application of the parties, be apportioned over several years (art. 5).

However, in practice it soon turned out that this decree contained a loophole which permitted inventors to circumvent its restrictive provisions as to inventions of interest to national defense. This was done by filing a patent application in any of the countries outside France which were signatories to the Convention Between Belgium,

[13] E.g., Robert Moureaux, Manual des brevets d'invention, second ed., Paris, Dallos, 1949, 432 pp.; André Bougu, Lexique de la propriet industrielle, Paris, 1955, 250 pp.; Paul Francoz, Les brevets d'invention, Paris [1955], 207 pp.; Alain Casalonga, Traité technique et pratique des brevets d'invention, 2 vols., Paris, 1949, with vol. 3 supplement of 1958.

[14] Rapport d'activité du commissariat a l'energie atomique du 1er janvier 1946 au 31 decembre 1950. Paris, Imprimerie Nationale, 1952, p. 159 [LC No. HD9698.F72 A5].

[15] Journal officiel, 1935, p. 11511.]

Brazil, France, Guatemala, Italy, Netherlands, Portugal, Salvador, Serbia, Spain, and Switzerland for the Protection of Industrial Property signed at Paris, March 20, 1883, as revised in London on June 2, 1934.[16] Under the terms of this convention, the inventor then enjoyed a period of 12 months priority, during which period he was protected against any subsequent patent application in the signatory states. During this period, the inventor could take out a patent in any of the signatory countries, which in this case French inventors then did in France. The Decree of June 17, 1938, plugged this gap by making the rigorous penal provisions of article 76 of the Criminal Code applicable to anyone—

> who, without authorization of the military authorities or ministers concerned, delivers or communicates to a person acting on behalf of a foreign power or foreign enterprise either an invention which is subject to expropriation, or manufacturing processes relating to an invention of this type or to an industrial use of interest to national defense.[17]

Article 76 reads:

> *Art. 76.* The following shall be guilty of treason and punished by death:
>
> (1) Any Frenchman who betrays to a foreign power or its agents a secret of national defense in any form or in any manner, or who in any manner procures the possession of such a secret in order to betray it to a foreign power or its agents;
>
> (2) Any Frenchman who intentionally destroys or damages a ship, an aircraft, materiel, supplies, or an establishment or installation either of which may serve purposes of national defense, or deliberately causes, after their completion, defects apt to obstruct their functioning or to cause an accident;
>
> (3) (As enacted by Decree With the Force of Law of April 9, 1940.) Any Frenchman who deliberately participates in demoralizing the Army or the Nation with the purpose of prejudicing national defense.
>
> (As enacted by Law of March 11, 1950.) However, in time of peace, any Frenchman or alien shall be punished by confinement in a penitentiary who renders himself guilty of:
>
> (a) The intentional manufacture of defective war materiel, provided such defect is not calculated to induce an accident;
>
> (b) intentional damage to or destruction of materiel or supplies intended for national defense or used therefore;
>
> (c) obstruction by force of the traffic in such materiel; and
>
> (d) deliberate participation in an enterprise to demoralize the Army in a manner calculated to prejudice national defense.
>
> The intentional participation in an offense committed in bands or with open violence the purpose or result of which was one of the major crimes specified in Paragraphs a, b, or c of the present article, as well as the preparation of such an offense, shall also be punished with confinement in a penitentiary.

Thus, any patenting abroad by a Frenchman of an invention of interest to national defense was considered such a communication to a person acting on behalf of a foreign power and therefore prohibited.[18]

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[16] British and Foreign State Papers, vol. 74, p. 44; id., vol. 139, p. 758.
[17] Casalonga, op. cit., vol. I, p. 256.
[18] Ibid.

These penal provisions were incorporated, by the Decree With the Force of Law of July 29, 1939,[19] in a revised version of Art. 81 of the Criminal Code. The pertinent provisions read:

Art. 81. Any Frenchman or alien shall be guilty of prejudicing the external security of the state and be punished with the penalties specified in Article 83 who—

(1) Without intending to betray it to a foreign power or its agents, secures possession of a secret of national defense in any manner or makes such secret known to the public or to an unauthorized person in any form or in any manner;

(2) through imprudence, negligence, or nonobservance of regulations permits the entire or partial, even temporary, destruction, withdrawal, or removal of objects, materiel, documents, or information which is entrusted to him and the knowledge of which may lead to the disclosure of a secret of national defense, or permits notice, copies, or reproductions to be taken thereof, even if in part;

(3) betrays or communicates without prior authorization by the competent authority to one acting for a foreign power or foreign enterprises an invention important for national defense or manufacturing information, research, or processes which relate to an invention of that type, or to an industrial use important for national defense.

Art. 83. Attacks against the external security of the state committed in time of war shall be punished by hard labor for a period of time.

If committed in time of peace, they shall be punished by imprisonment for from one to five years and by a fine of from 240,000 to 2,400,00 francs.

However, in the case of offenses coming under Article 79, Paragraph 1; Article 80, Paragraph 1; Article 81, Paragraph 1; and Articles 82, 103, and 104, imprisonment for not more than ten years and a fine of not more than 4,800,000 francs may be imposed.

(As enacted by the Decree of November 3, 1939.) In time of war all other intentional acts which are apt to prejudice national defense, unless already punishable by other provisions of law, shall be punished by imprisonment for from one to five years and by a fine of from 240,000 to 2,400,000 francs.

In all cases persons convicted may in addition be deprived of the rights enumerated in Article 42 of this code for not less than five years and not more than twenty. Moreover, they may be restricted in their [freedom of] residence for from five to twenty years.

An attempt at a minor crime shall be punished in the same manner as the completed act.

A minor crime committed abroad shall be punished in the same manner as one committed on French territory.

[19] Journal officiel, 1939, p. 9630.

The Instruction of November 26, 1939,[20] attempted to give a definition of the term "inventions of interest to national defense" as follows:

> The expression "of interest to national defense" must be interpreted in its most general meaning. * * * Therefore the following are deemed of interest to national defense: All inventions adapted to bring about notable progress in the creation, organization, or use of apparatus or materiel of any kind in use in the Armed Forces on land and on the sea, or in the Air Force, or whose utilization for military purposes can be expected on the basis of the invention under consideration.

The Decree With the Force of Law of November 29, 1939,[21] further regulated inventions of interest to national defense. It provided that patents were not to be granted pending the lapse of a period of 8 months after the filing of a patent application, without regard to the fact whether or not the invention is of interest to national defense (art. 1). In a case where the disclosure of the invention for which a patent application has been made is apt to entail a danger or disadvantage for national defense, the delivery of the patent may be delayed still further. In such case the Minister of Commerce serves notice upon the inventor that either the disclosure alone or both the disclosure and exploitation of the invention are prohibited. Any violation of this prohibition is punishable under article 83 of the Criminal Code (quoted supra) (arts. 2 and 5).

Under the provisions of article 81, paragraph 3 of the Criminal Code (also quoted supra), a patent application may be filed abroad if authorization is obtained. The application for authorization is of two types—one for the disclosure of the invention and one for its exploitation. If such authorization is refused, the prohibition of disclosure or exploitation may be made permanent, or for a limited time.

As authority on patent law [21a] suggests the following procedure in filing for patents:

> (*a*) File the first application for the patent in France;
>
> (*b*) if the inventor desires to protect himself abroad, file an application for authorization with the competent agency (Minister of Industrial Production, Service of Technical Research); and
>
> (*c*) wait for the granting of the authorization or for the running of the 8-month period which begins with the patent application.

The temporary or permanent prohibition against the disclosure or exploitation of the invention entitles the inventor or the person having rights therein to an indemnity (art. 6 of the Decree With the Force of Law of November 29, 1939). There is also a provision for a special commission and a special procedure to determine the amount of the indemnity (art. 7). However, this commission and procedure had not been established by the end of October 1957.[22]

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[20] Ibid., p. 13528.
[21] Ibid., p. 13834; with corrections, ibid., p. 13924 and p. 13970. As implemented and interpreted by Decree of Feb. 19, 1940 (ibid., 1940, p. 1305), and the Instruction of Feb. 20, 1940 (ibid., p. 1397 and p. 1532).
[21a] Casalonga, op. cit., vol. I, at p. 258.
[22] Ibid., vol. III (1958), p. 93.

DENMARK AND NORWAY

(By Vaino J. Riismandel, Legal Analyst, European Law Division, Law Library, Library of Congress)

In Denmark the development of peaceful uses of atomic energy is assigned by statute to the Atomic Energy Commission [Atomenergikommission] which operates under the general supervision of the Ministry of Finance.[23] In Norway, the same functions have been assigned to an Institute for Atomic Energy [Institutt for Atomenergi], an independent foundation.[24]

The legislation of these states has not provided any specific provisions in regard to inventions resulting from activities in the field of atomic energy. The statutes and regulations, in Denmark concerning the Atomic Energy Commission and in Norway concerning the Institute for Atomic Energy, are silent on this point. Therefore, the general statutory provisions in regard to patents and inventions are applicable.

1. POWERS OF THE STATE TO EXPROPRIATE INVENTIONS

In general patent legislation in Denmark [25] and Norway [26] does not contain provisions or authorizations under which inventions, or patents issued for them, could be kept secret if it were in the interest of the state. The patent laws in both countries, however, authorize the state, by way of expropriation, to use a patented invention or to annul a patent granted for an invention if this is held necessary for the public interest. Section 8 of the Danish Patent Act of 1936 provides: [27]

> *Sec. 8.* If it is required in the public interest it may be provided by law that a patented invention shall be used by the State without the consent of the patentee or that the patent shall be annulled, with the effect that the invention is left for general use, but in both these cases for full compensation to the patentee. This compensation shall be defrayed from public [funds] and, in the absence of an agreement, shall be determined by an opinion of four experts, two of whom shall be appointed by the Ministry of Commerce, Industry and Shipping and two by the patentee, and a chairman unanimously selected by the four experts, or, if no unanimity is achieved, a chairman appointed by the Municipal Court of Copenhagen, who shall intervene when a majority of the experts is unable to agree on the amount of the compensation, and determine the compensation within the amounts proposed by the experts.

[23] See our report of November 27, 1957, "Atomic Energy Legislation in Denmark" and Chr. L. Thomsen, "Atomenergikommissionens forste ar" [The First Year of the Atomic Energy Commission], Nordisk Administrativt Tidsskrift, vol. 38 (1957), pp. 295–312.

[24] See our report of November 27, 1957, "Norwegian Legislation Concerning Atomic Energy."

[25] See Berndt Godenhielm, Utlandsk och internationell patentratt [Foreign and International Patent Law]. Stockholm, 1953, pp. 81–86.

[26] Ibid., pp. 76–81. Also Ragnar Knoph, Andsretten [Intellectual Law]. Oslo, 1936.

[27] Bekendtgorelse nr. 192 af Lov om Patenter [Reenactment of the Patent Act] of September 1, 1936, in Danmarks Love 1665–1949 [Laws of Denmark]. Kobenhaven, 1950, pp. 1247 ff. This was the reenactment of the 1894 act and codified all amendments to this act up to 1936. Section 8 of the act has not been amended since.

The corresponding section in the Norwegian Patent Act reads as follows:

> A patented invention may be used by the public for compensation without the consent of the patentee if the King so determines.[28]

The Norwegian law also provides (sec. 10) that the compensation for the invention taken over for public use shall be determined by impartial arbitrators if no agreement is reached.

It has been stated by an authoritative writer on Norwegian patent law that the provision of section 8 quoted above "has little significance in practice but may be appropriate in certain cases in order to secure quickly for public authorities the use of an invention under reasonable conditions." [29]

Neither the laws nor the regulations of either country define specifically the circumstances under which the expropriation of an invention by the state may take place. The dearth of information on that point in their legal literature seems to indicate that no serious legal problems have arisen in that regard.[30]

It should be noted, however, that under an express mandate of the Danish Constitution (sec. 73, par. 3) any question concerning the legality of an expropriation or the amount of compensation is subject to scrutiny by the courts.[31]

In neither of these countries does the patent legislation provide for the secrecy of certain kinds of patents.

2. RIGHTS OF THE STATE TO THE INVENTIONS OF ITS EMPLOYEES

The state as an employer acquires in this capacity certain rights in regard to the inventions of its employees. There is no specific legislation on this subject in Norway and the general patent law principles are applicable to inventions made by employees.[32] According to these principles the right to patent an invention belongs to the inventor or to a person to whom the inventor has transferred this right (sec. 3 of the Patent Act). Only on the basis of a special contract between the employer and the employee can the employer acquire rights to an invention made by the employee.[33]

Until 1955 the Danish provided (sec. 3, par. 3 of the Patent Act) that no person, while employed by the government or within three years after his separation from Government service, may patent an invention without the permission of the appropriate minister if such an invention entirely or partially resulted from his work for the government.[34] This provision was repealed by the new law on Em-

[28] Lov om patenter of July 2, 1910, as amended by Law No. 8 of June 12, 1936, in Norges Lover 1682–1952 [Norwegian Laws]. Oslo, 1953, pp. 686 ff. See also Knoph, op cit., pp. 296–297.

[29] Alfred J. Bryn, Retten i opfinnelser efter Norsk lov [Right to Inventions in Norwegian Law]. Oslo, 1932, p. 103.

[30] For Norway see Knoph, op. cit., Bryn, op. cit., and id., Hvad enhver opfinner og patenthaver bør vite om patenter [What Every Inventor and Patentee should know about Patents]. For Denmark see Pou Andersen, Dansk Forfatningsret [Danish Constitutional Law]. Kφbenhavn, 1954, Chapter on Expropriation, pp. 717–794, and Alf Ross and Ernst Andersen, Dansk Statsforfatningsret [Danish Constitutional Law], vol. II. Kφbenhavn, 1948, pp. 229–232.

[31] Poul Andersen, op. cit., pp. 789–794.

[32] Godenhielm, op. cit., p. 77; Knoph, op. cit., p. 253.

[33] Ibid., p. 254 ff.

[34] Danmarks Love, p. 1247.

ployees' Inventions of April 29, 1955,[35] which also applies to Government employees (sec. 1).

Under the above law, the employee still retains his rights to an invention made by him (sec. 3). This principle, however, is weakened by two exceptions contained in section 5. This section reads:

> *Sec. 5.* If an employee has made an invention which the employer may consider to have resulted from the employee's employment [work], the employer shall be entitled to demand the transfer of the right to the invention in one or several countries to him if the working of the invention falls within the purview of his activities. The employer shall have the same right although the working of the invention does not fall within the purview of his activities if the invention of the employee relates to a specified problem posed by these activities.

Accordingly, the employer may acquire the invention of the employee only if such inventive activity formed a part of the employee's duties and the invention is of such a nature that it can be used in the employer's business. If the latter is not the case, the employer may assert his rights only if the invention resulted from a specific duty or problem assigned to the employee. However, the employer, in order to protect his rights to such an invention, has to notify the employee of his intention and until this happens the employee may not disclose the invention to others. The employee is also under a duty to notify the employer of any such invention. The pertinent provisions of the law read as follows:

> *Sec. 6.* An employee who had made an invention which is covered by the provisions of Section 5 is under a duty to inform the employer thereof without undue delay by giving him such information about the invention as to put the employer in a position to judge the significance of the invention.
>
> *Sec. 7.* If the employer desires to acquire the rights to an invention under Section 5 he shall inform the employee thereof within four months from the receipt of the notification mentioned in Section 6.
>
> Prior to the expiration of this period the employee may not dispose of the invention or reveal it to others in such a manner that it would allow the publication or working [of the invention] on somebody else's account without the consent in writing of the employer. This shall not apply in case the employer has declared in writing that he has no interest in the invention.
>
> Even if the above-mentioned period has not yet expired, the employee may apply for a patent for the invention if he has given the notification provided for in Section 6, but in such a case he shall inform the employer thereof beforehand. The employee may not renounce this right in advance.

The law declares void all contracts or agreements between the employer and employee which exclude the employee from compensation for his invention and states that the employee is entitled to a reason-

[35] Lov nr. 142 om Arbejdstagares Opfindelser, in Love, Anordninger, offentlige kungørelser, ministerielle circulaere, skrivelser m.m. [Denmark's Collection of Laws and Regulations], pt. A, 1955, p. 927. In general on this law see Torben Lund, "Nyere lovgivningsinitiativ på opfinderrettens område" [Recent Legislative Initiative in the Field of Inventions], Ugeskrift for Retsvaesen, 1953, No. 47, pt. B, pp. 293-303, and Knud Illum, "Bemaerkninger til foranstående" [Remarks to the Foregoing], ibid., pp. 303-304.

able compensation. An exception to this applies in case the value of the invention does not exceed the remuneration that the employee may expect to receive for his work (sec. 8).

The employer's interests are furthermore protected by the provisions of section 9 under which an invention patented by the employee within 6 months after the termination of his employment is considered to have been made during the employment if it comes within the definition of section 5 (inventions resulting from a specific assignment of work or applicable in the employer's business). This section is rendered inoperative only upon a showing that the invention was made after the termination of the employment.

An indication was found in Fra Regering og Folketing, the current supplement to the annotated collection of laws, Karnov's Lovsamling, that special regulations may be applicable to inventions of military significance.[36] However, this annotation did not refer to any specific statutory or regulatory provision and a thorough search of indexes and other source material failed to disclose any such provisions.

Patents and Atomic Research in Belgium, Italy, the Soviet Union and Sweden

(By Edmund C. Jann, European Law Division, Library of Congress)

BELGIUM

A survey of Belgian legislation enacted since the termination of World War II has disclosed no legislation dealing specifically with patents in the field of atomic energy. As to security safeguards applicable to certain inventions on the one hand and to information on the atomic sphere on the other, legislation exists which protects specified patents and manufacturing secrets and, in general, the interests of the state in nuclear research.

I. PATENTS AND MANUFACTURING SECRETS OF INTEREST FOR NATIONAL DEFENSE

The Law of January 10, 1955, on the Disclosure and Use of Inventions and Manufacturing Secrets of Interest to the Defense of the Territory of the State,[37] prohibits the disclosure and exploitation or use of certain inventions or manufacturing secrets. The prohibition applies whenever such acts would run counter to the interests of national defense or to the security of the state (art. 1). Anyone found guilty of disclosing such inventions or manufacturing secrets is punished by imprisonment for from 6 months to 5 years or by a fine of from 500 to 5,000 francs, or both. One who commits this act of disclosure by negligence is punished by imprisonment for from 1 month to 1 year or by a fine of from 100 to 1,000 francs, or both. The element of negligence gives rise to punishment if it has been established that the offender could not have been ignorant of the fact that the disclosure runs counter to the interests of national defense or of the security of the state. The unlawful exploitation of a patent

[36] 1955, issue No. 9, p. 4380, note 3.
[37] Bulletin usuel des lois et arretés, 1955, p. 15.

or use of a manufacturing secret is punishable by imprisonment for from 1 month to 1 year or by a fine of from 100 to 1,000 francs, or both (art. 13).

The minister with jurisdiction over matters of industrial property and the Minister of National Defense may jointly declare that the disclosure of an invention or manufacturing secret shall be contrary to the interests of national defense or of the security of the state for a specified period (art. 2). To protect the stated interests, the same ministers may jointly determine the conditions under which inventions may be exploited, or manufacturing secrets used. If these measures are found to be inadequate to meet the needs of the stated interests, the ministers may, in a decision supported by a statement of the reasons, either prohibit temporarily such exploitation or use, or reserve temporarily and exclusively to the state the right to exploit a patent or compel the party concerned to give the state all knowledge concerning the nonpatented invention or the manufacturing secret. The ministers may also procure for the state, by means of contracts freely entered into, a license under the patent or complete information about a nonpatented invention or manufacturing secret (art. 3).

When an application for a patent is made, the minister with jurisdiction over matters of industrial property may bring every invention to the attention of the Minister of National Defense for a determination as to whether needs of national defense or state security call for the measures provided for in articles 2 and 3. The Minister of National Defense may for the same purpose examine ex officio the contents of any patent application (art. 4).

Once a patent application becomes subject to the examination by the Minister of National Defense, the applicant is immediately notified of that fact by registered letter. From that moment, he is prohibited from disclosing the invention and, in particular, from applying for a patent abroad, from assigning his rights, or granting a license. The granting of the patent may be held up if necessary to complete this examination (art. 5).

Within 3 months, the Minister of National Defense shall report to the minister with jurisdiction over matters of industrial property whether or not any of the measures specified in articles 2 and 3 shall be taken. The ministers shall decide whether or not they shall take any of the said measures, and the applicant shall be informed thereof without delay (art. 6).

Anyone prejudiced by the administrative decisions under articles 2, 3, and 5 is entitled to indemnification for the damage suffered (art. 9). Such claims and payments due under freely negotiated contracts pursuant to art. 3 are submitted for conciliation before a commission composed of representatives of the two ministries and of the Superior Council for Industrial Property. The claimant may represent himself or act through an attorney (art. 10). If the conciliation effort fails, the courts of first instance shall hear the claimants, regardless of the amount involved (art. 11).

Upon request of a foreign state, the above rules shall apply also to any prohibition against the disclosure of an invention issued abroad by such state, provided a pertinent treaty exists between Belgium and the foreign state (art. 12).

II. SECURITY SAFEGUARDS IN THE FIELD OF ATOMIC ENERGY

The matter is regulated by the Law of August 4, 1955, on the Security of the State in the Field of Nuclear Energy [38] and by the Royal Decree of March 14, 1956, to carry out the Law of August 4, 1955, on the Security of the State in the Field of Nuclear Energy.[39]

The law provides that the King may, in the interest of national defense and the security of the state, subject the following to security measures to be determined by him: nuclear research and materials and methods of production carried out or utilized by institutions, establishments, and legal entities or natural persons who have at their disposal intelligence information, as well as documents or materials which have been obtained either directly from the Government or with its authorization. These security measures are designed for the management, safekeeping, and surveillance of all places set aside for this research or work, for the safekeeping of documents or the preservation of materials, as well as for the determination of conditions necessary for a person to be admitted in these places in order to engage in activities therein (art. 1).

Nuclear research and related activities and materials come under the secrecy provisions of chapter II of title I of book II of the Criminal Code, which deal with objects, plans, writings, documents, or intelligence information which affects the interests of national defense or the security of the state. Furthermore, the provisions of the same chapter which assure protection for military installations shall apply to the establishments, laboratories, shops, depots, or any other places given over to nuclear research or work (art. 2).

Moreover, without prejudice to the application of the penal provisions enumerated above, offenses committed in violation of the decrees enacted to carry out the present law shall be punished, even though done through negligence, by imprisonment for from 1 month to 5 years or by a fine of from 100 to 5,000 francs, or both. If committed in time of war, the punishment is confinement in the penitentiary and a fine of from 500 to 10,000 francs (art. 3).

Under the Royal Decree of March 14, 1956, the application of these security safeguards is ensured by a director of nuclear security, who is assisted by a security officer. They function under the authority of the Commissioner for Atomic Energy (art. 2).

The documents and materials which are to be protected by these security safeguards must have the following classifications "top secret," "secret," or "confidential" (art. 3). The classification of documents originating in Belgium is determined by those who draw them up, subject to the supervision of the Director of Nuclear Security (art. 5).

Information and materials received from foreign authorities in pursuance of an agreement shall enjoy in Belgium the classification affixed by said authorities (art. 4).

The remainder of the decree deals with operating procedures in classified matters.

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[38] Les Codes Larcier, vol. II, Complément, 1957 (Bruxelles: 1958), p. 134.
[39] Ibid.

CONCLUSION

Any patent application for an invention in the atomic field would be subject to the scrutiny of the Minister of National Defense. He may take appropriate steps as indicated in the Law of January 10, 1955, and prohibit its disclosure. There is no information available, however, as to whether or to what extent the atomic security enactments summarized above would apply to such an invention.

ITALY

(By Dr. Fran Gjupanovich, Legal Analyst, European Law Division, Law Library, Library of Congress)

I. Patent law in Italy is governed by the following provisions:

A. Civil Code of 1942, Book Five, articles 2584–2591, on Patents for Industrial Inventions; articles 2592–2594 on Patents for Models of Utility, and Models and Drawings Ornamental.

B. Royal Decree of June 29, 1939, No. 1127. Text of the Legislative Provisions Concerning Patents for Industrial Inventions.[1]

C. Royal Decree of February 5, 1940, No. 244. Text of Regulations on Patents for Industrial Inventions.[2]

D. Royal Decree of August 25, 1940, No. 1411. Text of the Legislative Provisions on Patents for Industrial Models.[3]

E. Royal Decree of October 31, 1941, No. 1354. Text of the Regulations on Patents for Industrial Models of Utility and Ornament.[4]

F. Law of October 10, No. 842. Provisions Concerning the Extension of Time of the Validity of Patents for Industrial Inventions.[5]

G. Royal Decree of June 21, 1942, No. 929. Text of the Legislative Provisions on Patents for Trade Marks.[6]

H. Presidential Decree of May 8, 1948, No. 795. Text of the Regulations on Patents for Trade Marks.[7]

II. The provisions on nuclear research and its application for industrial purposes are contained in the Decree of June 26, 1952, issued by the President of the Italian Cabinet.[8]

The decree provides for the creation of the National Committee on Nuclear Research. The main office is attached to the National Research Council in Rome, which directs all activities of scientific research.

The task of the Committee is to conduct studies, research, and experiments in the field of nuclear physics; to coordinate various initiating measures which may arise in this field of research; and to maintain relationships and develop cooperation with international institutions and foreign agencies engaged in nuclear studies.

[1] Gazzetta Ufficiale del Regno d Italia (Official Gazette of the Kingdom of Italy), 1939, No. 189.
[2] Ibid., 1940, No. 94.
[3] Ibid., No. 247.
[4] Ibid., 1941, No. 300.
[5] Gazzetta Ufficiale della Republica Italiana (Official Gazette of the Italian Republic), 1950, No. 251.
[6] Official Gazette of the Kingdom of Italy, 1942, No. 203.
[7] Official Gazette of the Italian Republic, 1948, No. 148.
[8] Creation of the National Committee for Nuclear Research (Instituzione del Comitato Nazionale per le Ricarche Nucleari); ibid., 1952, No. 156.

III. The above-cited laws of Italy (I, II) on patents and nuclear research contain no particular provisions dealing with atomic energy patent law, nor did a thorough study of the Italian Official Gazette up to October 4, 1958, with the exceptions of Nos. 101, 102, 103, 210, 211, 212, 213, 229, 231, 233, 234, 235, 236, 1958 disclose any other law dealing with the subject.

In connection with patent laws, it should be added that, by the Decree of January 25, 1956, a Commission attached to the Ministry of Industry and Commerce was created, charged with the duty of preparing a draft of amendments and supplements to the existing provisions on patents for industrial inventions, industrial models, and trademarks. The Commission was reorganized by the Decree of January 15, 1958.[9] No other specific information is available as to whether nuclear research is to be covered in the new legislation.

SOVIET UNION

(By Dr. Armins Rusis, Legal Analyst, European Law Division, Library of Congress)

I. AGENCIES CHARGED WITH ATOMIC ENERGY CONTROL

No particular legislation on the patenting of inventions relating to atomic energy has been disclosed in the Soviet Union. The only specific references to atomic energy found in the Soviet press relate to existence of a Chief Administration for the Utilization of Atomic Energy, attached to the U.S.S.R. Council of Ministers, to which a new director was appointed in September 1957.[10] There is also information that the first director was appointed on April 18, 1956,[11] as well as references to existence of a State Committee on Radio-electronics, which is also attached to the U.S.S.R. Council of Ministers.[12] No further details are available.

There are, however, special provisions of patent law which relate to secret inventions. Furthermore, some provisions on state secrets suggest that information on atomic energy and, consequently, inventions in this field constitutes secret inventions. Thus, rules on secret inventions should apply to the patenting of inventions relating to atomic energy.

II. INVENTIONS RELATING TO ATOMIC ENERGY SHOULD BE CONSIDERED SECRET INVENTIONS

This requirement follows from several provisions of the Resolution of the U.S.S.R. Council of Ministers of April 28, 1956, Concerning the Establishment of a List of Information which Forms State Secrets, the Disclosure of Which Shall Be Punished by Law.[13]

Section 2 definitely classes as secret the data "relating to individual kinds of production important for defense or strategy," in particular that concerned with "places for their safekeeping and existence and

[9] Ibid., 1958, No. 171.
[10] Pravda and Izvestiia, September 8, 1957, p. 6.
[11] Hans Koch, Sowjetbuch, 2d ed. (Köln: 1958), p. 414.
[12] Pravda, September 1, 1958.
[13] Ugolovnoe zakonodatel'stvo SSSR i soiuznykh Respublik (Criminal Legislation of the U.S.S.R. and Constituent Republics) (Moscow: 1957), pp. 447–448.

plans for their accumulation." Furthermore, there is a specific reference to "radioactive elements and trans-uranium elements" in the list of information of an economic nature which forms state secrets.

List of information forming state secrets:

12. Information on reserves in the subsoil of the U.S.S.R. of radioactive elements and their extraction [and] production capacity, and plans of production of radioactive and trans-uranium elements, as well as data on the fulfillment of these plans in absolute figures for the whole of the U.S.S.R. or for individual ministries, central administrations, and enterprises.

Finally, under section 14, inventions relating to atomic energy should be considered secret, because they are unquestionably "of great military and scientific importance." Section 14 reads:

List of information forming state secrets:

14. Discoveries and inventions which are of great military importance.

Discoveries and inventions which are of great importance for science or the national economy before the head of a ministry or a government department has authorized their being made public.

III. PATENTING OF SECRET INVENTIONS

A. Law in force on patenting secret inventions.

1. Summary

The U.S.S.R. Patent Law [14] has special rules regulating inventions which are to be considered secret (title V, secs. 59–66). Not only inventions and technical improvements relating to national defense (sec. 59, par. 1), but also any invention or improvement declared secret by a ministry or government agency to which the invention or improvement is suggested (sec. 59, par. 2) are considered secret. An inventor must transmit his secret invention or technical improvement to the U.S.S.R. Government agency concerned (sec. 63). The author of an invention which may be of importance for national defense has two ways in which to file his application; he may file it personally with either the Ministry of Armed Forces or with one of the following ministries: Aviation Industry, Shipbuilding Industry, or Armaments and Ammunition; or he may forward it secretly through the local agency of the U.S.S.R. Ministry of State Security [now the Committee of State Security]. If, however, the author works in an enterprise or a scientific research institute immediately concerned with the subject matter of the invention, he may file his application with the secret division of the enterprise or institute and have it transmitted secretly to the competent authority (sec. 64).

2. Text of the patent law

TITLE V. SECRET INVENTIONS AND TECHNICAL IMPROVEMENTS

59. Inventions and technical improvements relating to national defense shall be considered secret.

[14] Statute Concerning Inventions and Technical Improvements Enacted by the Soviet Council of People's Commissars of March 5, 1941 (U.S.S.R. Laws 1941, Text 150; English translation in Vladimir Gsovski, Soviet Civil Law, Vol. 2 (Ann Arbor, University of Michigan Law School: 1949), pp. 361–397. For a discussion of the U.S.S.R. Patent Laws, see ibidem, Vol. 1 (1948), pp. 592–606.

Moreover, the ministry and, with the subsequent approval of the minister, every agency to which the invention or improvement is suggested, may declare it secret if its secrecy is in the interests of the State.

60. The declaration of an invention or technical improvement as secret shall be communicated immediately to the applicant, author, and agency concerned.

61. The secrecy of an invention or technical improvement may be removed in the same manner in which it was established.

62. Publication in the press of information concerning a secret invention or improvement and divulgence of its essence by any means whatsoever shall be prohibited under penalty of law.

63. If the inventor deems his invention or technical improvement of a secret nature, it is his duty to take all possible precautions to protect his invention or technical improvement from being divulged and to transmit it to the U.S.S.R. government agency concerned.

64. The author of an invention which may be of importance for national defense must either file his application personally with the Ministry of the Armed Forces, or, respectively, with the Ministry of Aviation Industry, Shipbuilding Industry, or Armaments and Ammunition or forward the application secretly through the local agency of the U.S.S.R. Ministry of State Security [now Committee of State Security] to the corresponding ministry. If the author works in an enterprise or a scientific research institute immediately concerned with the subject matter of the invention, he may file his application with the secret division of the enterprise (institute) to have it transmitted secretly to the competent authority.

65. For the development of secret inventions, the institution concerned must place at the disposal of the inventor special premises and forbid him to work at home on such an invention.

66. The procedure for selecting inventions and technical improvements relating to national defense, the procedure for testing, correspondence with the inventors, development (of the invention), removal of secrecy, and settlement of disputes concerning such matters as the preceding shall be established by special instruction approved by the U.S.S.R. Council of Ministers upon the suggestion of the U.S.S.R. Committee of National Defense.[15]

B. Penal provisions:

1. Edict of June 9, 1947

EDICT OF JUNE 9, 1947 OF THE PRESIDIUM OF THE U.S.S.R. SUPREME SOVIET CONCERNING RESPONSIBILITY FOR THE DISCLOSURE OF STATE SECRETS AND FOR LOSS OF DOCUMENTS CONTAINING STATE SECRETS [16]

* * * The Presidium of the U.S.S.R. Supreme Soviet has enacted:

1. The disclosure of information forming a state secret, committed by a person to whom this information was entrusted or who had access to such information by virtue of his official posi-

[15] This committee was abolished after the conclusion of World War II. No instruction mentioned in this section is available.

[16] Vedomosti, June 16, 1947, No. 20.

tion, shall be punished—unless such act may be qualified as treason or espionage—by confinement in a camp of correctional labor for a period of from eight to twelve years.

2. The disclosure by a person in the military service of information of a military character forming a state secret—unless his act may be qualified as treason or espionage—shall be punished by confinement in a camp of correctional labor for a period of from ten to twenty years.

3. Disclosure by private persons of information forming a state secret—unless such act may be qualified as treason or espionage—shall be punished by confinement in a camp of correctional labor for a period of from five to ten years.

4. The loss by an official of material, documents, or publications containing information forming a state secret—unless this act entails by its nature a more severe punishment under the law—shall be punished by imprisonment for a period of from four to six years.

The same crime, if it caused especially serious consequences, shall be punished by imprisonment for a period of from six to ten years.

5. The loss by a man in the military service of documents containing information forming a state secret—unless such act by its nature entails a more severe punishment under the law—shall be punished by confinement in a camp of correctional labor for a period of from five to eight years.

The same crime, if it caused especially serious consequences, shall be punished by confinement in a camp of correctional labor for a period of from eight to twelve years.

6. Registration or transmittal abroad of inventions, discoveries, or technical improvements forming a state secret and made within the confines of the U.S.S.R. as well as abroad, but by citizens of the U.S.S.R. dispatched by the Government, shall be punished—unless these crimes may be qualified as treason or espionage—by imprisonment in a camp of correctional labor for a period of from ten to fifteen years.

7. Cases involving crimes provided for in the present edict shall be tried by military tribunals.

* * * * *

2. RSFSR Criminal Code

84a. The filing abroad without a proper permit of an invention made within the boundaries of the U.S.S.R., as well as filing of inventions made abroad by citizens of the U.S.S.R. dispatched by the State, shall be punished by correctional labor without confinement not to exceed one year or a fine not to exceed 1,000 rubles.

Transmittal abroad with proper permit of an invention as defined in paragraph 1 of the present section shall be punished by confinement not to exceed ten years and confiscation of the whole or part of the property.

84b. The filing of an application abroad for an invention or for an improvement relating to national defense, as well as inventions and improvements recognized in a procedure established by law as being subject to secrecy (secret), or their transmittal abroad

and the divulgence of their meaning in any manner whatsoever shall be punished under Section 586 of the present Code (as enacted August 30, 1931).

C. Draft of a new patent law:

A draft of a new patent law was prepared and made public in 1957.[17] This draft also carries proposals on the patenting of secret inventions. The only essential departure from the provisions now in force is the distinction made between secret (sec. 45) and top secret (sec. 46) inventions. The pertinent provisions of the draft read as follows:

IV. SECRET INVENTIONS, DISCOVERIES, AND SUGGESTIONS FOR RATIONALIZATION OF PROCEDURES

44. Inventions, discoveries, and rationalization suggestions relating to national defense shall be considered secret.

The Committee on Inventions and Discoveries attached to the Council of Ministers of the U.S.S.R. and every agency to which the invention, discovery, or rationalization suggestion was submitted, may declare it secret if its secrecy is in the interest of the State.

The declaration of an invention, discovery, or rationalization suggestion as secret shall be communicated immediately to the applicant, author, and agency concerned.

The secrecy of an invention, discovery, or rationalization suggestion may be removed in the same manner in which it was established.

A person who publishes in the press information on secret inventions, discoveries, and rationalization suggestions or discloses their essence by any means whatsoever shall be prosecuted.

In the event the author deems his proposal to be of a secret nature, it is his duty to take all possible precautions to protect his proposal from being revealed and to transmit it to the U.S.S.R. government agency concerned.

For development of secret inventions, discoveries, and rationalization suggestions, the institution concerned shall place special premises at the disposal of the author and forbid him to work on such proposals at home.

45. *Applications concerning secret inventions*, with the exception of those absolutely secret which pertain to national defense, shall be filed with and shall be examined by the Committee on Inventions and Discoveries attached to the Council of Ministers of the U.S.S.R. and they may be forwarded to it through the secret agency of any institution, department, or enterprise.

46. *Applications concerning top secret inventions* having to do with new means of armament and fighting techniques and their application in practice, shall be filed with and shall be examined by the Ministry of Defense, which shall also examine inventor's complaints concerning issuance of authorship certificates on the inventions, utilization of these inventions, and payment of the remuneration.

Registration of the above-mentioned inventions and issuance of authorship certificates shall be made by the Committee on

[17] Izobretatel'stvo v SSSR, Vol. 12, (Moscow: 1957), pp. 18-25.

Inventions and Discoveries attached to the Council of Ministers of the U.S.S.R. on the motion of the Ministry of Defense of the U.S.S.R. [Italic supplied.]

SWEDEN

(By Vaino J. Riismandel, Legal Analyst, European Law Division, Law Library, Library of Congress)

SUMMARY OF STATUTORY PROVISIONS

1. Legislation on inventions of importance for national defense

The general Swedish legislation on patents[18] and atomic energy does not provide for any special procedure under which the State may claim any rights to inventions in the field of or connected with atomic energy. In order to protect its interests in this field, the state may turn to laws originally enacted for other purposes.

Section 17 of the general patent law, the Patent Act of 1884, as amended,[19] provides that the state may expropriate for reasonable compensation a patented invention for the use of the public. Such inventions although taken over by the state are not secret. The Patent Act provides that all patent applications and their supporting documents shall be made public, and the patent itself entered in a public register (sec. 7).

The protection of secrecy is possible under Law No. 722 of November 29, 1946, Providing Special Provisions in Regard to Inventions of Importance for Defense,[20] as amended by Law No. 78 of February 29, 1952.[21] In addition, the state may also as the employer acquire rights to certain inventions or under certain patents pursuant to the provisions of Law No. 345 of June 18, 1949, concerning rights to employees' inventions.[22]

The Law of 1946 on inventions of importance for defense establishes special procedures for the handling of such inventions and patents granted for them. The ordinary procedure of publication of patent applications and entry of patents in the public register is made inapplicable in regard to applications and patents which are considered essential for national defense. The law gives the State also the power to acquire such patent rights by way of expropriation.

As a general rule, all inventions which have a bearing upon war materials shall be kept secret. The term "war materials" (krigsmaterial) includes: (1) All kinds of supplies and materials intended for war use, together with their parts and accessories; and (2) materials, tools, and machines which are primarily used for the production of

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[18] The Patent Act of May 16, 1884, as amended, in Sveriges Rikes Lag 1958 [General Code of Sweden], 79th ed., Stockholm, 1957, pp. B 104–115.

[19] The most recent English translation of the Patent Act is available in Patent and Trade Mark Review, vol. 50 (1951–52), pp. 35–40, 67–70, 99–102. See also The Principal Swedish Laws, Ordinances, Decrees, and Official Instructions Relating to the Protection of Industrial Property Translated into English, Stockholm, 1945.

[20] Lag Nr. 722 med särskilda bestämmelser om uppfinningar av betydelse för försvaret, Sveriges Rikes Lag 1958, pp. B. 116–117. This law, consolidating and continuing wartime legislation, was intended for temporary application only and was to expire on December 31, 1949; however, it has been continuously extended since. The last extension was until December 31, 1958, by Law No. 60 of February 18, 1955, Svensk Författningssamling [Sweden's Official Gazette], 1955, No. 60, p. 85. See also Ake v. Z[weigbergk], "Svenska lagbestämmelser om ändring i vanliga patentregler på grund av krigsförhållandena," Nordiskt Industriellt Rättskydd, vol. 15 (1946), pp. 99–101.

[21] Svensk Författningssamling, 1952, No. 78, p. 149.

[22] Lag om rätten till arbetstagares uppfinningar, Sveriges Rikes Lag 1958, pp. B 115–116.

such war materials.[23] In addition to weapons, the first category includes explosives, vehicles, communication equipment, etc., as well as all materials or supplies with an explosive, incendiary, or radiation effect, and chemical substances used as weapons.

The secrecy label is attached to the patent application until it has been established whether it is of importance for national defense. The fact alone that the invention has some relation to weapons or other military or war supplies is not sufficient to give the State the right to exercise its power for exploitation or expropriation of the invention.[24] This prohibition of publication, which is spelled out in section 1 of the law, applies not only to the inventor or his representatives but also to all other persons who have acquired knowledge of the invention.[25] Criminal sanctions are provided for violators of this ban.

The determination whether an invention is of such importance for national defense in order for it to be handled under the provisions of the Law of November 29, 1946, is made by a special commission, the Examining Agency for Certain Patent Applications (Granskningsnämnden för vissa patentansökningar m.m.), which was set up by Royal Ordinance No. 764 of December 6, 1946.[26] If such a determination is made, the state has either to exploit the patented invention or to acquire the patent by expropriation for reasonable compensation. A patent granted on such an invention is entered in a register of secret patents which is not accessible to the public. If the commission has made no determination within 2 months, the prohibition against publication of the invention lapses.

Secret patents are subject to periodical reexamination by the commission. The reexamination as to their importance in regard to defense shall take place whenever the circumstances warrant it but at least once every 3 years. If it is found that there are no reasons for keeping the patent secret any longer, it is released, removed from the register for secret patents, and entered in the general patent register. The ban against publication or disclosure of the invention may be removed also upon an application from the interested party. If the examining agency does not render a decision within 3 months, which period may be extended by the King for another 3 months, the prohibition or ban lapses upon expiration of this 3 month period.

Applications for patents on inventions which might come within the application of the 1946 act are filed with the Patent Office, but the application and its supporting documents have to be turned over to the examining agency, which then makes the determination whether the invention is of importance for national defense.

The state has to pay a reasonable compensation for the use of the invention it has acquired or expropriated under the provisions of the 1946 act. The patentee or inventor has recourse to the ordinary courts if no agreement can be reached over the compensation to be paid to him. The Municipal Court of Stockholm (Rådhusrätt), the

[23] Royal Decree of December 6, 1946, Defining War Materials [Kungörelse nr. 765 angående vad med krigsmaterial skall förstå], Svensk Författningssamling, 1946, No. 765, p. 1532.

[24] Betänkande med förslag till Lag med särskilda bestämmelser on uppfinningar m. m. av betydelse för rikets försvar. Avgivt av särskilt tillkallade sakkunnige [Report of a Special Experts Commission and a Draft of a Law Concerning Inventions of Importance for National Defense]. Stockholm, 1946, p. 21.

[25] See Gunnar Reiland, Handbook för uppfinnare och patentsökande [Manual for Inventors and Patent Applicants]. Stockholm, 1949, p. 88.

[26] Kungörelse med vissa föreskrifter angående tillämpningen av lagen den 29 november 1946 (nr. 722) med särskilda bestämmelser om uppfinningar av betydelse för försvaret, Svensk Författningssamling, 1946, No. 764, pp. 1529–1531.

court of general jurisdiction for this city, has been designated to hear such cases. The bench of the court for hearing these cases is composed of three regular judges (one of them serves as the presiding judge) and of three technical experts. The experts for each case are selected by the chief judge of the court from a list of 15 experts nominated by the King. If considered necessary, the court may order that the hearing shall be held behind closed doors.

2. Employer's rights to inventions made by employees

The respective rights and relations of employees and employers in regard to inventions made by the employee while in the employ of the employer are now regulated by Law No. 345 of June 18, 1949. As a general rule, the employee-inventor has the same rights in regard to his invention as any other inventor. These rights are restricted only where the facilities and time of the employer have been utilized in the process of invention and the duties of the employee included research and inventive activities.[27]

The law distinguishes 3 kinds of inventions of the employee:

(1) Inventions within the scope of employment when the main duty of the employee consists of research and invention, and the invention is the result of such activities, or the invention contains in some way the solution of a problem outlined in his work;

(2) inventions whose use falls within the range of activities of the employer but which result from relations between the employer and the employee other than those cited above;

(3) free inventions whose use or application falls within the scope of activities of the employer but which have been made without any relation or connection to the work (employment) of the employee.

In the second and third examples, the inventor-employee retains all his rights to the invention, but the employer acquires certain shop rights to the invention or has a priority to enter into an agreement with the employee about the use of the invention. Only in cases which fall under the first category (i.e., where the invention was the result of research and activities which were the principal duty of the employee) does the employer acquire patentable rights.

The significance of the law on employees' inventions in regard to atomic energy lies in the fact that it also applies to Government employees. Any Government employee working in the field of atomic energy or any member of the Armed Forces is subject to this law. The Swedish Supreme Court held in 1946,[28] for example, that an officer who invented some new construction for a trench mortar had not been acting within the scope of his employment although the tests were financed by the Army and all drawings were made in Army bureaus. Consequently, it was not a service invention, and the inventor had only to give to the state a simple license to retain the patent and all other rights to the invention.

[27] See Journal of the Patent Office Society, vol. 39 (1957), p. 844 (Employees' Patents in Sweden). A good review is given by Fredrik Neumeyer, "Erfahrungen mit dem schwedischen Gesetz über Arbeitnehmererfindungen" [Experience with the Swedish Law on Employees' Inventions], Auslands und Internationaler Teil von Gewerblicher Rechtsschutz und Urheberrecht (Weinheim, Germany), 1956, No. 8/9, pp. 344–349.

[28] *Rudling* v. *Stockholm R.R.* (Nov. 30, 1946), Nytt Juridiskt Arkiv, vol. 73, pt. 1, pp. 630–634.

3. Legislation on atomic energy

The mining of uranium, thorium, or other minerals with a uranium content,[29] as well as their treatment and use for the production of atomic energy, and the possession, construction, and operation of atomic energy plants [30] in Sweden is under the supervision of the state. These activities may be performed only under a special permit or license from the state [31] or under a general concession granted by the state.[32]

These functions have been delegated by the King to a special Commission (Delegationen för atomenergifrågor) consisting of 5 members appointed by the King.[33] Specifically, this Commission has been authorized to:

(1) Follow the developments in the field of atomic energy, act as a consulting agency to the Government, and prepare necessary plans for activities in the field of atomic energy, taking into consideration the general fuel and energy supply of the country;

(2) give opinions as requested by Government agencies, especially concerning the granting of concessions and permits in the field of atomic energy, legislation on atomic energy and secrecy problems, and Government subsidies or grants for activities in this field;

(3) handle matters concerning atomic energy which are referred to it by the King; and

(4) handle matters concerning international cooperation on atomic energy.[34]

In carrying out its functions the Commission is required to cooperate with scientific and technological institutions and organizations and other agencies which are active in the field of atomic energy.

Appendix

Translations of Swedish Statutes

1. Law No. 722 of November 29, 1946, providing special provisions in regard to inventions of importance for defense

[Sveriges Rikes Lag 1958, pp. B 116–117]

Prohibition of publication of an invention

Sec. 1. An invention which has a special bearing upon war materials and which is made here in the Realm or belongs to someone who is residing here may not be published or, if it has not been made public, a patent or other protective rights for it may not be applied for in a foreign state, and it may not be disclosed in any other manner if it is not otherwise provided for in the following provisions.

[29] Lag nr. 307 om ändrad lydelse av 9 kap. lagen den 28 maj 1886 (nr. 46) angående stenkolfyndigheter m. m. [Law Amending Provisions of Chapter 9 of the Law of May 28, 1886, Relating to Coal Deposits] [of June 1, 1956], in Svensk Författningssamling, 1956, No. 307, pp. 685–686.

[30] Lag nr. 306 om rätt att unvinna atomenergi m. m. [Atomic Energy Law] [of June 1, 1956], ibid., 1956, No. 306, pp. 683–685.

[31] Sections 1 and 2, lex cit. See also Royal Ordinance No. 308 of June 1, 1956, Concerning Certain Permissions Under the Atomic Energy Law [Kungörelse med vissa tillstånd enligt atomenergilagen], ibid., 1956, No. 308, pp. 686–687.

[32] Sections 63 and 65 of the Law Relating to Coal Deposits as amended by Law No. 307 of June 1, 1956 (See note 12).

[33] Royal Directive on the Commission for Atomic Energy [Instruction for delegationen för atomenergifrågor] of June 1, 1956, ibid., No. 309, pp. 687–689. See also Royal Ordinance No. 460 of June 27, 1957, on Transfer of Authority Under Atomic Energy Law [Kungörelse med förordnande av tillsynmyndighet enlight atomenergilagen], ibid., 1957, No. 460, p. 1007.

[34] Royal Directive No. 309, of June 1, 1956 (see note 16), secs. 1 and 2.

The King shall determine what shall be considered war materials.

Sec. 2. Patent applications and their supporting documents shall be made available to the agency designated by the King (examining agency) for the examination of the importance of the said invention for the defense of the country.

If the examining agency finds that the invention mentioned in Section 1 is of such importance for defense that it shall be kept secret permanently, it shall without delay make a decision to this effect. If the nature of the invention is obvious from the application documents and no decision on its secrecy is rendered within two months from the date that the documents were received at the Patent Office, the prohibition provided for in Section 1 shall no longer be enforceable in regard to the invention.

Sec. 3. If a person desires that the prohibition provided for in Section 1 be removed, he shall file a special application to this effect with the examining agency, which without delay shall consider whether the invention is of such importance for defense that it should be kept permanently secret.

Sec. 4. If the State, within three months from the date when the examining agency under Section 2 or 3 made the decision on the continued secrecy of the invention, neither through a decision of expropriation nor by any other means protects all rights to the invention, the prohibition shall become void upon expiration of this period. However, the King by his decision may before expiration extend the period for no longer than three months if he finds that special circumstances require this.

Sec. 5. As long as the prohibition is in force, the patent application for the invention shall not be made public as required by Section 7, first paragraph, or Section 20, second paragraph, of the Patent Ordinance.

Sec. 6. An appeal from the decision of the examining agency to continue to keep the invention secret shall be made to the King without a specified time limit.

Expropriation

Sec. 7. If it is determined that the invention is of special importance for defense, the King shall prescribe that the invention may be utilized by the State or by someone else as the King determines.

If the invention is of the nature provided in Section 1, the King shall prescribe that all rights to the invention shall be surrendered to the State.

Secret patents

Sec. 8. If a patent is sought on behalf of the State for an invention mentioned in Section 1, the King shall, if the invention is of special importance for defense, prescribe that Section 7 of the Patent Ordinance shall not be applied to the application.

If the application documents are complete and there is no reason to assume that the application will be rejected under the provisions of Section 6 of the Patent Ordinance, a secret patent shall be granted together with a certificate of its issuance; the documents pertaining to this case shall not be issued to others or anything disclosed about them without the permission of the patent holder.

The Patent Office shall make an entry of the patent in a special register which shall not be accessible to the public.

Sec. 9. If the State's right in regard to an invention considered in Section 8 has been transferred to someone else or the order mentioned therein has been repealed, the continually pending application shall thenceforth be treated according to Section 7 of the Patent Ordinance. If a patent has been granted, it shall be entered in the general patent register, a notice shall be given, and publication shall be made also in accordance with the seventh paragraph of the same section.

Compensation

Sec. 10. If a decision is made under Section 2 or 3 to continue keeping an invention secret or if a decision is made which is dealt with in Section 7, reasonable compensation shall be paid from public funds for the damage or infringement caused thereby.

A suit for compensation shall be heard by the Municipal Court of Stockholm, whose bench shall be composed according to the provisions of Section 23 of the Patent Ordinance.

Special provisions

Sec. 11. A person who, as a result of the provisions of this law, has acquired knowledge of an invention which is governed by provisions of this law shall not make use of what he has learned in this manner or without due cause disclose anything about it.

Sec. 12. Whoever violates the prohibition provided for in Section 1 or the provisions of Section 11 shall be punished by dayfine[35] or imprisonment provided that such acts are not subject to severer punishment under other laws.

The fine shall accrue to the Crown.

Sec. 13. In a lawsuit for compensation under Section 10 or on the basis of liability, or for damages on the basis of an act as provided for in Section 12, the court may order that the case shall be entirely or partially heard behind closed doors.

The same shall apply in case the lawsuit has been brought in regard to a patent governed by Section 8.

Sec. 14. More detailed provisions for the application of this law shall be issued by the King.

2. ROYAL ORDNANCE NOS. 765 OF DECEMBER 6, 1946, DEFINING WAR MATERIALS UNDER THE LAW OF NOVEMBER 29, 1946 (NO. 722), PROVIDING SPECIAL PROVISIONS IN REGARD TO INVENTIONS OF IMPORTANCE FOR DEFENSE

[Svensk Författningssamling, 1946, No. 765, p. 1532]

Sec. 1. By virtue of Section 1, second paragraph, of the Law of November 29, 1946, Providing Special Provisions in Regard to Inventions of Importance for Defense, his Royal Majesty has ordered that the following shall be considered war materials under this law:

(1) Materials specifically intended for war use, together with parts and accessories, of the following kind:

Weapons and ammunition, as well as similar supplies with an explosive, incendiary, or radiation effect;

weapons of chemical warfare;

[35] "Dayfine" is a penalty peculiar to the law of Scandinavian countries. It means that according to the financial and property status of the defendant the court assigns a definite monetary value to a day, and the total amount of the fine is arrived at by multiplying the number of "dayfines" by the monetary value attached to 1 day.

materials for protection against injury by the above-listed materials;

vehicles, ships, and aircraft, as well as bridges and other transportation equipment of all kinds;

materials for protection against reconnaissance and other observation, and materials for camouflaging; and

materials intended for the obstruction and hindrance of movements or transports;

(2) materials, tools, or machines which are principally used for the production of materials and equipment listed under Subsection (1).

8. EXCERPT FROM ROYAL ORDINANCE NO. 764 OF DECEMBER 6, 1946, ON CERTAIN PROVISIONS FOR THE APPLICATION OF LAW NO. 722 OF NOVEMBER 29, 1946, PROVIDING SPECIAL PROVISIONS IN REGARD TO INVENTIONS OF IMPORTANCE FOR DEFENSE

[Svensk Författningssamling, 1946, No. 764, pp. 1529–1531]

Sec. 1. The examining agency according to the Law of November 29, 1946, * * * shall be a special agency, the Examining Agency for Certain Patent Applications. * * *

Sec. 2. If a secret patent has been granted, the agency shall, whenever there exists a special reason and in any case within three years from the granting of the patent, examine whether the invention which the patent concerns still is of such importance for defense that it shall be kept secret. If the agency finds that the secrecy is no longer necessary, the case shall be submitted for consideration by the King.

Sec. 7. The agency shall be composed of five members appointed by the King. From among the members the King shall appoint one as chairman.

Patent Rights in Nuclear Energy in Hispanic Countries

(By Helen L. Clagett, Chief, Hispanic Law Division, Library of Congress)

REPORT ON HISPANIC COUNTRIES

Extensive research has been conducted in the statutes, court decisions, treatises and periodical literature of Latin America, Spain, Portugal, and the Philippines, in an effort to locate pertinent information on the subject of patent rights in the field of nuclear energy. There is a growing amount of statutory material, as well as literature but an examination shows all other aspects of the subject have been given primary attention. With few exceptions, noted below, the search has proved to be practically negative. The major part of the legislation dealing with atomic or nuclear energy appears to be limited to the nationalization or government monopoly of all aspects of the field—exploration, exploitation, production, sale, importation or exportation and other controls. In some cases, private interests are favored, provided they are supervised or controlled by the government. Other legislation concerns the administration and government organization, and similar matters. General patent laws apparently have not been specifically amended on this point, although many

statutes contain provisions that can be interpreted to cover nuclear energy patents, such as restrictions and expropriation of inventions of national interest, of importance to military or national defense, in specific fields monopolized by the government, such as petroleum and mining, etc.

It was found that the majority of the Hispanic countries have ratified the United Nations Statute of an International Atomic Energy Agency, and since this statute contains some mention of nuclear energy patent rights (art. XI) it should follow that legislation may be introduced in the near future to harmonize the national and the international interests on this particular point.

This International Statute in Article XI, Section F(5) reads:

> F. After a project has been approved, the Agency and the member or group of members who have presented it shall arrange for an agreement which should: * * *
>
> (5) Contain adequate provisions respecting the rights and interests of the Agency and of the interested member or members in any inventions or discoveries, or in any patents related to these, which may result from the project.

In the field of national law in the Hispanic countries, the following provisions have been located.

1. Argentina

In Argentina, Decree Law 22.498, of December 19, 1956, which was based on a bill drafted by the National Atomic Energy Commission of Argentina speaks in two articles of the subject of invention patents, as follows:

> Article 2. Its [National Atomic Energy Commission] objectives shall be:
>
> (1) To promote and undertake scientific and industrial research and applications of nuclear transmutations and reactions.
>
> (2) To supervise the applications referred to in the foregoing paragraph, whenever necessary for reasons of public interest or in order to prevent possible damages or injury.
>
> Article 17. No new patents or additional certificates shall be granted if they are related to the purposes referred to in Article 2, without previous advice from the National Atomic Energy Commission.
>
> All such patents and certificates shall be considered void if this previous approval is lacking. A negative ruling on the part of the Commission must be based on the corresponding Law on Patents. Otherwise, the inventor may demand that his invention be expropriated.

An earlier statute in Argentina (Decree 9,695 of May 24, 1951) attempted to encourage scientific and technical study, publication and research in this field, and in article 2, section (i) lists among the functions of the National Council of Technical and Scientific Investigation, the duty to "stimulate the use of patents which might interest industrial development of the country." However, no implementation or commentary on either this early or on the later decree has been located. No cases in point were found, insofar as the Supreme Court of the Nation is concerned, and since there is no digest or index to lower court decisions, it was not possible to find any information on this

point. Periodical literature, for the most part, appeared to be limited to international controls and war uses, etc., rather than to any practical applications in Argentina in the technical or research fields.

In an article by Jorge Sixto Antoni ("La Energia Nuclear en el Derecho" in Revista del Instituto de Derecho Civil, Buenos Aires, vol. 2, 1955, pp. 31–44), a few paragraphs are devoted to patent rights. In summary, this author's conclusions are that an amendment to the patent law would be necessary because of the special importance of this type of invention. The result would be, insofar as concerns the relations between the State and the inventor, that the former acknowledges a property right which could be registered and enjoyed by the latter, but must be closely supervised or controlled by the state, perhaps expropriated with due compensation, or a share in the royalties or benefits derived therefrom.

2. Ecuador

Two decrees were cited for Ecuador purporting to grant patents in inventions in Ecuador to a French firm. These are reproduced herein in full.

1. Decree 142, of January 1, 1948 (Registro Oficial, February 12, 1948):

> Article 1. To grant a patent for 12 years and for the entire territory of Ecuador to the French firm of Centre National de la Recherche Scientifique, for the invention known as "Process and Mechanical Equipment for the Production of Energy Through the Disintegration of Uranium Nuclei," which consists of a process of energy production by means of the fission of atomic nuclei, etc. The other characteristics of this invention are available in the Descriptive Memorandum, in accordance with numeral (2) of Article 4 of the law concerned.
>
> Article 2. The State does not guarantee the actuality, merit, or usefulness of the invention, and safeguards the rights of third parties.
>
> Article 3. This decree shall be inscribed in the proper book, and a copy given to the person concerned, such copy being the title to patent, in accordance with the provisions of the law on this subject.
>
> Article 4. The Minister of Finance, Patents, Trade Marks, etc., is charged with the execution of this decree.
>
> NATIONAL PALACE, *January 29, 1948.*

2. Decree 144, of January 29, 1948 (Registro Oficial, February 4, 1948):

> Article 1. An Exclusive Patent for twelve years and for the entire territory of Ecuador is granted to the French firm, Centre National de La Recherche Scientifique, for the invention known as "Refinement in the Processes and Devices for Producing Energy by Atomic Disintegration" (case A), which refers to the industrial application of a reaction of this nature, and for the purpose of permitting the practical utilization of the energy thus liberated, etc. The other characteristics of this invention are recorded in the Descriptive Memorandum, in conformity with paragraph 2, Article 4 of the applicable law (Patent Law).

Article 2. The State does not guarantee the reality, the merit nor the profits of the invention, and preserves without prejudice the rights of third parties.

Article 3. Let the present Decree be registered in the corresponding Book and a copy issued to the interested party, which shall serve as a PATENT TITLE, in accordance with the provisions of law.

3. Philippines

In the Philippines, Republic Act 1815, of June 22, 1957 (Official Gazette September 30, 1957), in its article 7 covers briefly the point of inventions as follows:

Section 7. The Commission [Philippine Nuclear Energy Commission] shall be empowered to offer research facilities and financial or other aid to deserving projects by public or private parties. In case patentable inventions should result from such government-subsidized research, the benefits shall be shared equally between the inventor and the government.

4. Portugal

In Portugal, a Decree-law No. 39.580, (Diario do Governo, March 29, 1954), provides as follows:

Article 10. The Nuclear Energy Board shall enjoy separate legal entity and financial autonomy, with power to acquire, hire and let, administer, and alienate buildings, industrial installations, factories, mining concessions, participation in industries, *proceeds from invention patents*, as well as to administer on its own responsibility, with rendering of accounts, the endowments received from the State * * *

Article 11. The following shall consitute income of the board:

(e) Proceeds from the exploitation of its own patents and from those which it has been authorized to exploit.

Spain, and the Latin American nations, with the exceptions above noted, have enacted a number of laws and decrees in the field of atomic energy, but a perusal of these fails to reveal any specific provisions on patents. Many of the statutes particularly in Brazil and Spain, appear interested in the encouragement of scientific investigation and research, application of atomic energy to industry, peaceful uses, etc., all of which may, as a practical matter, imply accessory provisions such as application of the patent law. As mentioned above, the general patent legislation may well be applicable by interpretation, particularly those provisions which restrict or supervise any licensing or granting of certificates in analogous cases of patents on inventions of national interest, or military value, or pertinent to some field in which the nation has nationalized or monopolized the particular subject matter. No doubt, any Atomic Energy or Nuclear Energy Board would be the body most likely to be involved in such supervision or control. Likewise, the provisions for expropriation of patents of public interest would doubtless apply in other important fields also.

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